

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 1,8 i 1

1. Edition

En

PES 4 A 50 D 410 RS 1010 X RSV 250-950 A 4 B 60 L
Komb.-Nr. 0 400 474 158

supersedes
company Daimler-Benz
engine OM 636

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,7-1,8 \\ (1,65-1,85) \end{matrix}$ mm (from BDC) RW=9,0-12,0 mm - Zyl. 4

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
930	12,4+0,1	2,3-2,4	0,2(0,25)			
250	9,4-9,6	0,8-1,4	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees rev/min 7 8 9			3 Torque control rev/min mm 10 11	
loose	800	0,3-1,0	-	-	-	ca. 26	250	9,0	930	12,4-12,5
	X = 5,5						250	9,4-9,6	300	13,6-14,2
ca. 59	11,4	970-990					470-530	=2,0		
2a	4,0	1065-1095								
	1150	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		5 4a Idle stop rev/min Control rod travel mm 8 9	
930	22,5-23,5 (21,5-24,5)	970-990*	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

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4.85

A1

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 MB 1,8 r 4

2. Edition

En

PES 4 A 50 D 410 RS 1025 RSV 650-1200 A 5 B 729 L

Komb.-Nr. 0 400 474 154

0 400 474 155

A 5 C 729 L

superseded **4.83**

company Daimler-Benz

engine OM 636

34 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) RW 9,0 - 12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1180	13,6+0,1	2,9 - 3,0	0,2(0,25)			
650	9,9-10,1	1,1 - 1,2	0,15(0,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min 2		Intermediate rated speed 4			Control lever deflection in degrees 7	Lower rated speed 8		Torque control 3	
	Control rod travel mm	Control rod travel mm rev/min					rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	1000	0,3-1,0	-	-	-	ca. 34	650	9,5	1180	13,6-13,7
ca. 57	12,6	1220-1230					100	min.19,5	400	14,5-15,1
							650	9,9-10,1	500	13,6-13,8
(2a)	1450	0,3-1,7					865-925 = 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limit Note: changed to) rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5)		(4a) Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1180	29,0 - 30,0 (28,0 - 31,0)	1220-1230*	-	-	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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A2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SOA 2,8 a

1. Edition

En

PES 3 A 80 D 410/3 RS 1183 RSV 325-1075 A 8 B 492-1 L
Komb.-Nr. 0 400 463 104

supersedes
company **Sonacome**
engine **F 3 L 912**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,9-2,0 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1075	11,0+0,1	5,0-5,1	0,2 (0,35)			
325	8,4-8,6	1,0-1,6	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	325	5,5	1075	11,0-11,1
	x = 5,5						325	5,9-6,1	500	12,0-12,1
ca. 54	10,0	1115-1125					410-470	= 2,0	935	11,4-11,6
2a	4,0	1155-1185								
	1335	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1075	50,0-51,0 (48,5-52,5)	1115-1125*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SOA 3,7 a
2. Edition

En

PES 4 A 80 D 410/3 RS 1183 RSV 325-1150 A 8 B 493-1 L
Komb.-Nr. 0 400 464 095

supersedes 9.84
company Sonacome
engine F 4 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,9-2,0} (1,85-2,05) mm (from BDC)

Test bench SO 4110

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,6+0,1	5,0-5,1	0,2(0,35)			
325	9,3-9,5	1,7-2,3	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,	-	-	-	ca. 17	325	8,9	1150	10,6-10,7
ca. 51	x = 3,5						100	min. 19,5	450	11,6-11,7
2a	9,6	1190-1200					325	9,3-9,5	900	11,0-11,3
	4,0	1245-1275					480-540	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	50,0-51,0 (48,5-52,5)	1190-1200*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SOA 3,7 a 1

2. Edition

En

PES 4 A 75 D 410/3 RS 1183
Komb.-Nr. 0 400 464 104

RSV 325-1400 A 8 B 742 - 1L

supersedes 9.84
company Sonacome
engine F 4 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,9-2,0}
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1400	11,0+0,1	5,5-5,6	0,2(0,35)			
325	7,9-8,1	0,7-1,3	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 22	325	7,5	1440	11,0-11,1
	X = 5,75								500	12,0-12,1
ca. 69	10,0	1440-1450					325	7,9 - 8,1	885	11,4-11,6
2a	4,0	1525-1555					640 -	700 = 2,0		
	1700	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1400	55,0-56,0 (53,5-57,5)	1440-1450*	800	50,0-52,0 (48,5-53,5)	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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A5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 b

1. Edition

En

PES 4 A 80 D 320 RS 1282

RS 350/1500 A 2 B 2073-1 R

supersedes

company MWM

engine D 229-4

Komb.-Nr. 9 407 083 285

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25
(2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1480	9,0-9,1	5,4-5,5	0,25(0,4)			
350	5,9-6,1	0,6-0,9	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose VHca.59 FH voll 2a	800	0,3-1,0	-	-	-	FHca.34	350	6,0	1480	9,0-9,1
	X =						300	6,6-7,2	500	10,2-10,3
	8,0	15 40-1550					400	4,8-5,6	800	10,0-10,3
	4,0	1570-1600					550	max. 3,5	1000	9,6-9,8
	1700	0,3-1,7				1350	max. 2,6			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1480	54,0-55,0 (52,5-56,5)	1540-1550*	800	54,5-56,5 (52,5-58,5)	100	19,0-21,0 mm RW	-	-
500	52,0-54,0 (50,0-56,0)		1000	55,0-57,0 (53,0-59,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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A6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 11
2. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1150 A 8 C 2163 - 2 L

Komb.-Nr. 0 400 464 130

supersede **9.84**
company **KHD**
engine **F 4 L 912**
51 kW/2300 min⁻¹
Schlepper DX 4,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 - 2,0$
 $(1,85 - 2,05)$ mm (from BDC)

Testis ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1175	10,8+0,1	5,2 - 5,3	0,25 (0,4)			
325	8,6-8,8	1,0 - 1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 21	325	8,2	1175	10,8-10,9
	x = 3,25								500	12,0-12,1
ca. 57	9,8	1215-1225					325	8,6-8,8		
2a	4,0	1275-1305					460-520	= 2,0		
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	changed to 1	3	4	5	6	7	8	9	
1175		1215-1225*	800	51,5 - 53,5 (49,5 - 55,5)	100	115,0-125 (112,0-128,0) =19,5-21,0 mm FVV	0 - 0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

A7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 10

3. Edition

En

PES 2 A 80 D 310/3 RS 1322 RSV 325-1150 A 8 B 2011-1 L
Komb.-Nr. 0 400 462 054

supersedes 10.84
KHD
company F 2 L 912
engine 25 kW bei 2300 min⁻¹
Schlepper D 3607-
S 33

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1150	11,1+0,1	5,9-6,0	0,25(0,4)			
325	8,9-9,1	1,2-1,8	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 26	325	8,5	1150	11,1-11,2
		x = 6,0							500	12,0-12,1
ca. 60 2a	10,1 4,0 1480	1190-1200 1320-1350 0,3-1,4					325 690-750=2,0	8,9-9,1 =2,0	1010	11,5-11,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	59,0-60,0 (57,5-61,5)	1190-1200*	750	57,0-59,0 (55,0-61,0)			-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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A8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 14

2. Edition

En

PES 3 A 80 D 410/3 RS 1324
Komb.-Nr. 0 400 463 147

RSV 325-1075 A 8 C 2163-1 L

superseded by 10.04
KHD
company F 3 L 912
engine 34 kW/2150 min⁻¹
Schlepper DX 3,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,9-2,0}{(1,85-2,05)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
800	11,6+0,1	5,1-5,2	0,25 (0,35)			
325	8,5-8,7	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			④ Control-lever deflection in degrees	Lower rated speed		③ Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 17	325	8,1	800	11,6-11,7
	x = 4,0								500	11,6-11,7
ca. 50	9,7	1115-1125					100	min. 19,5	900	11,4-11,6
	4,0	1155-1185					325	8,5-8,7	1075	10,8-11,0
②a	1320	0,3-1,4					480-540	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min	③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
800	51,0-52,0 (49,5-53,5)	1115-1125*	-	-	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 13

2. Edition

En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1250 A 8 C 2168-1 L
Komb.-Nr. 0 400 463 148

supersedes 10.84
company KHD
engine F 3 L 912
45 kW/2500 min⁻¹
Schlepper DX 3,30

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1250	10,7+0,1	5,6-5,7	0,25(0,35)			
325	7,4-7,6	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

Test: ISO 4113

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever rev/min	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 19	325	7,9	1250	10,7-10,8
	x = 4,0								500	11,3-11,4
ca. 57	9,7	1290-1300					325	8,3-8,5	1090	10,9-11,2
2a	4,0	1330-1360					425-485	= 2,0		
	1565	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	55,5-56,5 (54,0-58,0)	1290-1300*	800	48,5-50,5 (46,5-52,5)	100	115,0-125,0 (112,0-128,0) =19,5-21,0 mm RW	0	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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①

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 16,0 h

1. Edition

En

PE 10 A 90 D 520/5 LS 2362 RQV 750 AB 985 R
Komb.-Nr. 0 400 649 179

supersedes
company: MAN
engine: D 25 30 ME

1- 8- 7-6 - 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,5-1,6}{(1,45-1,65)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
725	12,6+0,1	11,1-11,2	0,3 (0,45)			
200	6,4-6,6	1,2-1,8	0,2 (0,4)			

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 29	11,6 4,0	745-755 765,-785	-	-	-	-	-	-	-	-

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
725	110,5-111,5 (108,5-113,5)	745-755 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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A11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1b1

3. Edition

En

PES6A85D 410/3 RS2366 EP/RS 325/1325 AOB 691 DL
Komb.-Nr. 0 400 866 057 AOC 691 DL

supersedes 1.85
company KHD
engine BF6L913
88 l³/2650 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9-2,0$
(1,85-2,05) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45)			
200	8,9- 9,1	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	VH ca. 65	325	6,0	1325	11,4-11,5
	X = 7,0					FH ca. 30	400	2,7-3,7	500	12,1- 12,2
VH ca. 65	10,4	1355-1365					800	2,7-2,9	1060	11,7-11,8
FH max	4,0	1450-1480					1300	2,0-2,2		
2a	1630	0 - 1,0					1400	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	changed to)	3	4	5	6	7	8	9	
LDA 1325	0 bar 76,0-77,0 (74,0-79,0)	1355-1365	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	118,5-128,5 (115,5-131,5) = 18,0 - 18,4 mm H ₇			

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

A12

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 b 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A.. RS 2366 + RS ..AOB 691 DL AOC 691 DL	0,70	0	13,4-13,5
		0,34	11,4-11,5
		0,15	13,0-13,1
			11,9-12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 b 2

1. Edition

En

PES 6 A 85 D 410/3 RS 2366

EP/RS 325/1325 AOB 709 DL
AOC 709 DL

supersedes
company KHD
engine BF 6 L 913
88 kW/2650 min⁻¹

Komb.-Nr. 0 400 866 063

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05) mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45)			
200	8,9-9,1	1,6-2,2	0,3(0,05)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3	3	4	5	6	8	9	10	11	
loose	800	0,3-0,7	-	-	-	VH ca.66	325	6,0	850	11,9-12,1
	X = 7,0					FH ca.30	400	2,7-3,7	500	11,9-12,1
VH ca.66	10,4	1355-1365					800	2,7-2,9		
FH max.	4,0	1450-1480					1300	2,0-2,2		
(2a)	1630	0-1,0					1400	0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limit Note changed to) rev/min	(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1325	0,5 bar 76,0-77,0 (74,0-79,0)	1355-1365*	LDA 500	0 bar 44,0-47,0 (42,0-49,0)	100	118,5-128,5 =18,0-18,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 b 2

Test at n = 700 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2366 +EP/RS..AOB 709 DL AOC 709 DL	0,50	0,38 0,10	11,4-11,5 11,1-11,2 9,4- 9,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VMA 18,6 a

1. Edition

En

PES 10 A 90 D 410 IS 2374 RSV 250-750 A 1 B 623 L
Komb.-Nr. 0 400 879 102

supersedes -
company Motori VM
engine V 130/10

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2
0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	10,5+0,1	8,5 - 8,6	0,3			
250	6,6-6,8	1,0-1,6	0,25			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	250	6,2	750	10,5-10,6
	x = 4,0						100	min. 19,5	450	10,5-10,7
ca. 46	9,5	790-800					250	6,6-6,8	300	11,8-12,4
2a	4,0	800-830					365-425	= 2,0		
	965	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	750	85,0-86,0	790-800 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 9,6 p

En 1. Edition

PES 6 A 95 D 410 RS 2416 RQ 750 AB 1199 L
Komb.-Nr. 0 400 846 534

supersedes -
company KHD
engine BF 6 L 413 FRT
112 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $1,75-1,85$ mm (from BDC)
 $(1,70-1,90)$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
710	11,8±0,1	12,8 - 13,0	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	10,6	750-755	-	-	-	-	-	-
				3,5	781-791						

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At $750-755 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes/mm 7
710	127,5 - 129,5 (125,5 - 131,5)	-	-	-	100	115,0 - 125,0 (112,0 - 128,0) = 13,2 - 13,4 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 k

3. Edition

PES 6 A 95 D 410 RS 2416

RSV 325-1100 A 8 B 2040 L

En

supersedes 5.84

Komb.-Nr. 0 400 876 279

A 8 C 2040 L

company KHD

engine BF6L413 FR
Schlepper DX 230,
147 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,75-1,85
(1,70-1,90) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1100	10,6±0,1	11,2-11,4	0,3 (0,6)			
325	5,4-5,6	0,9-1,5	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 16	325	5,5	1100	10,6-10,7
		X = 4,0					100	min. 19,0	550	10,6-10,8
ca. 49	9,6	1140-1150					325	5,9-6,1	375	11,8-12,4
2a	3,7	1165-1195					440-500	= 2,0		
	1330	0,3-1,7					600	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1100	0,5 bar 111,5-113,5 (109,5-115,5)	1140-1150*	LDA 900	0,5 bar 114,0-117,0 (112,0-119,0)	100	120,0-130,0 = 13,4 - 14,0 mm RW	0	-	
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)					

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

Testbench ISO 1113

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 K

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS2416 + RSV..A8B 2040L	0,50	0,36 0,25 0	10,6-10,7 10,3-10,4 9,6-9,9 9,5-9,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 8,8 a 2

2. Edition

En

PES 4 A 95 D 410 RS 2424 RSV 300-900 A7B 616 DL
Komb.-Nr. 0 400 874 216 A7C 616 DL

supersedes 11.82
company TAM
engine F4L413R

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,75,1,85}{(1,70-1,90)}$ mm (from BD) $\frac{9,0-12,0}{9,0-12,0}$ mm

Testo ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
900	8,8-8,9	7,6-7,8	0,3 (0,6)			
300	5,9-6,1	0,7-1,3	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 27	300	5,5	900	8,8-8,9
	X = 5,5						100	min. 19,0	600	9,4-9,6
ca. 58	7,8	940-950					300	5,9-6,1	400	9,8-9,9
2a	4,0	945-975					435-495	= 2,0		
	100	0,3-1,7					600	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle		5 4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	75,5-77,5 (73,5-79,5)	940-950*	-	-	100	115,0-125,0 (112,0-128,0) = 12,5 - 13,1 mm H ₁	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

A20

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 5 A 95 D 410 LS 2426 RQ 250/1150 AB 839 L
Komb.-Nr. 0 400 845 012
1 - 3 - 5 - 4 - 2 je $72^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 1.82
company MAN
engine D 2555 MX/MXF
141 kW/2300 min⁻¹
MAN-Nr. 1-7618

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,3-1,4}
(1,25-1,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	11,5 - 11,7	0,3(0,6)			
250	6,4-6,6	0,9 - 1,5	0,2(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,3	600	16,0	10,3	1195-1210 1255-1285	250	6,5	100	min. 7,9 6,4-6,6 370-410=2,0	1150	11,2-11,3 11,6-11,7 11,4-11,6 11,2-11,5

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $1195-1210 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	114,5-116,5 (112,5-118,5)	250	800	115,0-118,0 (113,0-120,0)	100	146,5-156,5
			500	max. 116,5 (max. 118,5)		

Checking values in brackets

①

Test Specifications Fuel Injection Pumps and Governors

①

WPP 001/4 KHD 12,7 h

2. Edition

En

Testoil-ISO 4113

PC 8 A 95 D 410 LS 2451 RQV 300-1250 AB 1085 L
Fomb.-Nr. 0 400 640 123

superseded 0,92

company KHD

engine F 8 L 413 F
188 kW (256PS)₁
bei 2500 min

1 - 8 - 7 - 2 - 6 - 5 - 4 - 3
0 -45 -90 -135-180-225-270-315 ±0,5°(±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)
2,00-2,10 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,3-10,9	9,2 - 9,4	0,3(0,6)			
300	7,1-7,3	1,8 - 2,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1250	15,2-17,8	-	-	-	ca.12	100 300 455-515 = 2,0	min.8,7 7,1-7,3	300 650 1290	0,7-0,9 4,6-4,8 8,4
ca.64	9,3 4,0 1500	1290-1300 1370-1400 0 - 1,0				3a				

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	91,5 - 93,5 (89,5 - 95,5)	1290-1300*	1000 700	91,5 - 94,5 (89,5 - 96,5) 91,0 - 94,0 (89,0 - 96,0)	100	20,0 - 130,0 (17,0 - 133,0)	1250 700 400 925	10,3-10,4 10,7-10,8 10,7-10,8 10,5+C,2
					100-220 (80-240)			

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 h

2. Edition

En

Testoil-ISO 4113

PE 10 A 95 D 610/4 LS 2452 RQV 300-1250 AB 1129 L

Kombi-Mot. 0 400 649 223
1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2

0 - 27-72 -99 -144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 02

company KHD

engine F 10 L 413 F
228 kW (310 PS)
bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min 1	Control rod travel mm 2	Port closing at prestroke mm (from BDC)		Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4			
1250	10,3+0,1	2,0 - 2,1 (1,95 - 2,15)	0,3(0,6)			
300	6,4-6,6	1,2 - 1,6	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1380	15,2-17,8	-	-	-	ca. 18	100 300	min.8,0 6,4-6,6	300 500 1000 1300 1500	1,2-1,3 ,6-2,9 5,4-5,6 7,7-7,8 8,7
ca.51	9,3 4,0 1500	1290-1300 1375-1405 0 - 1,0								

Torque control travel a = 0,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	90,5 - 92,5 (88,5 - 94,5)	1290-1300 *	1000 800	90,5 - 93,5 (88,5 - 95,5) 93,5-96,5 (91,5-98,5)	100	120,0 - 130,0 (117,0-133,0)	1250 500 940	10,3+0, 10,5+0, 10,4+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 n 1

2. Edition

En

PE 12 A 95 D 610 LS 2453 RQV 1150 AB 996 L
Komb.-Nr. 0 400 640 096

supersedes 1.83

company KHD

engine F 12 L 413 F

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testspec 4113

Port closing at prestroke $2,0-2,1$
($1,95-2,15$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1110	10,2+0,1	8,9-9,1	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 26	9,2 4,0	1150-1155 1175-1190	-	-	-	-	-	-	1050 1100 1150 1200 1220	0,5-0,9 2,7-3,1 5,5-5,8 9,0-9,1 10,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1110	88,5-90,5 (86,5-92,5)	1150-1155*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

A24

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Test Specifications Fuel Injection Pumps and Governors

En

Testoil-ISO 4113

PES 6 A 95 D 410 RS 2471 RSV 325-1150A 8 B 674 DL
Komb.-Nr. 0 400 876 275 A B C 674 DL

supersedes 6.83
company: KHD
engine: BF 6 L 913 C
132 kW/2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,85-2,05)
1,97±2,00 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8+0,1	10,8 - 11,0	0,3(0,6)			
325	7,2-7,4	1,6 - 2,2	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.15	325	6,8	500	11,8+0,1
	x =	4,75					100	min. 19		
⑧ 55	1190-1200=	10,8					325	7,2-7,4		
	1235-1265=	4,0					615-675=	2,0		
	1400=	3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitat.	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop		
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	1150	0,7 bar 108,0-110,0 (106,0-112,0)	1190-1200*	LDA 850	0,7 bar 102,5-105,5 (100,5-107,5)	100	120,0-130,0 (117,0-133,0 = 15,9 - 16,4 mm RW	325	6,8
				LDA	0 bar 62,0-64,0 (59,5-66,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
2471 + 674 DL	0,7 bar		11,8 - 11,9
		0	10,6 - 10,7
		0,27	11,6 - 11,7
		0,1	10,8 - 11,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

/

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 6,1 e
8. Edition

En

PES 6 A 95 D 410 RS 2471 RSV 325-1150 A B B 707 DL
Komb.-Nr. 0 400 876 274 A B C 707 DL

superseded by 3.84
KHD
company
engine BF6L 913 C
132 kW
Einbau 2300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 - 2,0$
 $(1,85-2,05)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,8+0,1	10,8-11,0	0,3(0,6)			
325	7,1-7,3	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testspec ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 21	325	6,7	1150	11,8-11,9
		x = 4,75					100	min.19,0	500	11,8-12,0
ca. 55	10,8	1190-1200					325	7,1-7,3		
	4,0	1235-1265					590-650	= 2,0		
2a	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to)	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
LDA	0,7 bar	1190-1200*	LDA	0,7 bar	100	125,0-135,0	-	-			
1150	108,0-110,0 (106,0-112,0)		850	102,5-105,5 (100,0-108,0)		122,0-138,0					
			LDA	0 bar		= 15,5 -					
			500	62,0-64,0 (59,5-66,5)		15,8 mmRW					

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

B3

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 e - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2471 + RSV..A 8 B707DL A 3 C707DI	0,70	0,37	11,8-11,9
		0,09	11,5-11,6
		0	10,1-10,3
			9,9-10,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e

6. Edition

En

PES 5 A 95 D 410 LS 2488
Komb.-Nr. 0 400 845 029

ROV 250-1100 AB 850 DL

supersedes 5.84

company MAN

engine D2565 M/MF
141 kW/2200 min⁻¹
MAN-Nr. 1-7726

1-3-5-4-2 je 72° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,2+0,1	11,8-12,0	0,3(0,6)			
250	5,7-5,9	1,1-1,7	0,3(0,5)			

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1140	14,4-17,6	-	-	-	ca. 13	100	min. 1,3	200	0,7-0,9
ca. 42	10,2	1140-1150					250	5,7-5,9	500	3,5-3,8
	4,0	1165-1195					315-375	2,0	800	5,0-5,4
	1300	0 - 1,0					450 max.	1,0	100	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	117,5-119,5 (115,5-121,5)	1140-1150*	800	116,5-120,5 (114,5-122,5)	100	15,5-16,5	1100	11,2+0,1
			500	max. 116,5 (max. 118,5)	250	mm RW 6,0 mm RW	800	11,2+0,3
							500	11,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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B5

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 10 A 95 D 520/5 LS 2501 RQ 250/1150 AB 1171 R
Komb.-Nr. 0 400 649 229
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersedes
company **MAN**
engine **D 2530 MTXF**
265 KW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,7-1,8} (1,65-1,85) mm (from BDC) _{Zyl. 10}

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	11,8-12,0	0,3 (0,6)			
250	5,9-6,1	1,5-2,1	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,4	1195-1210	250	6,0	100	min. 7,5	1150	11,4-11,5
VH =	max. 46 °			4,5	1270-1300			250	5,9-6,1	600	11,9-12,0
								330-370	= 2,0	855	11,7-11,9
										920	11,4-11,7

Torque-control travel on flyweight assembly dimension a = 0,20 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,5 bar 117,5-119,5 (115,5-121,5)	-	LDA 750	0,5 bar 119,5-122,5 (117,5-124,5)	100	166,5-176,5 (163,5-179,5)
			LDA 500	0 bar 76,5-79,5 (74,5-81,5)	250	6,5mm RW

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 15,0 c 7 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 A.. LS2501 + RQ .. AB 1171 R	0,70	0,35	11,9-12,0
		0,24	11,6-11,7
		0	10,7-11,0
			10,1-10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 10 A 95 D 520/5 LS 2501 RQ 250/1250 AB 1171-1 R
Komb.-Nr. 0 400 649 230

supersedes
company: MAN
D 2530 MTE
engine: 295 kW

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0 -27 -72 -99 -144-171-216-243 -288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,65-1,85) mm (from BDC) Zyl. 10; RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,7+0,1	12,9-13,1	0,35(0,6)			
250	6,4-6,6	1,0-1,6	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,7	1295-1310	250	6,5	100	min.8,0	-	-
	VH=max. 46°			4,5	1355-1385			250	6,4-6,6		
								340-380	= 2,0		
								450	max.1,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1250	0,7 bar 128,5-130,5 (126,5-132,5)		LDA 750	0,5 bar 122,5-125,5 (120,5-127,5)	100	166,5-176,5 (163,5-179,5) =18,2-18,8 mm RW
			LDA 500	0 bar 76,5-79,5 (74,5-81,5)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MAN 16,0 c 8

Test at n = 1250 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 A..LS 2501 +RQ..AB 1171-1 R	0.70	0 0,37 0,24	12,7-12,8 10,2-10,3 12,4-12,5 11,2-11,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c 9

1. Edition

En

PE 10 A 95 D 520/5 LS 2501 RQV 250-1150 AB 1179 R
Komb.-Nr. 0 400 649 234

supersedes
company MAN
engine

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0 -27 -72 -99 -144-171-216-243 -288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,7-1,8) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	12,9-13,1	0,3(0,6)			
250	5,9-6,1	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 12	100	min.7,5	200	0,7-0,9
ca. 46	11,0 4,0 1400	1190-1200 1240-1270 0-1,0					250 320-380=2,0	5,9-6,1	600 1050 1250	4,1-4,4 6,7-7,2 9,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑤		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	128,5-130,5 (126,5-132,5)	1190-1200*	500	124,0-127,0 (122,0-129,0)	100	15,7-16,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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B10

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 c 10

1. Edition

En

PE 10 A 95 D 520/5 LS 2501 RQV 250-1250 AB 1180 R
Komb.-Nr. 0 400 649 235

supersedes-
company: MAN
engine

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4
0 -27 -72 -99 -144-171-216-243 -288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(1,7-1,8)$ mm (from BDC) Zyl. 10; RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,3+0,1	12,3-12,5	0,3(0,6)			
250	5,9-6,1	1,5-2,1	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1290	15,2-17,8	-	-	-	ca. 12	100	min.7,5	200	0,7-0,9
ca. 47	11,5	1290-1300					250	5,9-6,1	600	4,1-4,4
	4,5	1365-1395					320-380=2,0		100	6,6-7,1
	1500	0-1,0					500 max.1,0		375	9,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,7 bar 123,0-125,0 (121,0-127,0)	1290-1300*	LDA 750	0,7 bar 119,5-122,5 (117,5-124,5)	100	170,0-180,0 (167,0-183,0)	-	-
			LDA 500	0 bar 76,5-79,5 (74,5-81,5)	250	7,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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B11

D. Adjustment Test for Manifold Pressure Compensator

MAN 16,0 c 10

Test at n = 1250 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel
			diminution difference mm (1)
PE 10 A... 2501 +RQV...AB 1180 R	0,70	0,39 0,28 0	12,3-12,4 11,6-11,9 10,5-10,7 10,0-10,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 16,0 c 11

1. Edition

En

PE 10 A 95 D 520/5 LS 2501 RQV 250-1150 AB 1180 → 1R
Komb.-Nr. 0 400 649 236

supersedes
company: MAN
engine.

1-8-7-6-3-5-2-10-9-4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{1,7-1,8}{(1,65-1,85)}$ mm (from BDC) $\frac{Zyl. 10}{10}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	11,9-12,1	0,3 (0,6)			
250	5,9-6,1	1,5-2,1	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 46	10,7 4,0 1400	1190-1200 1235-1265 0 - 1,0					250	5,9-6,1	600	4,1-4,4
							320-380=2,0		1050	6,7-7,2
							450 max. 1,0		1250	9,8

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 118,5-120,5 (116,5-122,5)	1190-1200 *	LDA 750	0,7 bar 118,5-121,5 (116,5-123,5)	100	16,7-17,3 mm RW	1150	1,7+0,1
			LDA 500	0 bar 78,0-81,0 (76,0-83,0)			500	2,1+0,1
							870	1,9-0,2
							1020	11,7+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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B13

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 A..LS2501 + RQV..AB 1180-1 R	0,70	0,33 0,26 0	11,7-11,8 11,5-11,6 10,5-10,8 9,9-10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps and Governors

① WPP 001/4 MAN 16,0 c 12

1. Edition

En

PE 10 A 95 D 520/5 LS 2501 RQV 250-1150 AB 1181 R

supersedes -

Komb.-Nr. 0 400 649 237

company: MAN

1- 8- 7-6 - 3 - 5 - 2 - 10- 9 - 4

engine:

0-27-72-99-144-171-216-243-288-315° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Testoil-ISO 4113

Port closing at prestroke		1,7-1,8 (1,65-1,85)		mm (from BDC) Zyl. 10			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)	
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm	
1	2	3	4	2	3	6	
1150	12,0+0,1	12,5-12,7	0,3 (0,6)				
250	5,9-6,1	0,9-1,5	0,3 (0,5)				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 12	100	min. 7,5	200	0,7-0,9
ca. 46	11,0	1190-1200					250	5,9-6,1	600	4,1-4,4
	4,0	1240-1270					320-380=2,0		1050	6,7-7,2
	1400	0 - 1,0							1250	9,7

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 124,5-126,5 (122,5-128,5)	1190-1200 *	LDA 750	0,7 bar 124,5-127,5 (122,5-129,5)	100	170,0-180,0 (167,0-183,0)	1150	12,0+0,1
			LDA 500	0 bar 77,5-80,5 (75,5-82,5)			500	12,4+0,1
							875	12,2+0,2
							1025	12,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

B15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 A..LS2501 + RQV..AB 1181 R	0,70	0,35	12,6-12,7
		0,26	11,4-11,5
		0	10,3-10,6
			9,9-10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 12,8 f 1

1. Edition

En

PE 8 A 90 D 320 LS 2514 RQV 250-1250 AB 1184 R

Komb.-Nr. 0 400 648 135

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes...

company: MAN

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5+0,1	10,3-10,4	0,3(0,45)			
250	6,9-7,1	0,9-1,5	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	100	min. 8,4	200	0,7-0,9
ca. 46	10,5 4,0 1500	1290-1300 1350-1380 0 - 1,0					250	6,9-7,1	450	2,9-3,5
							340-400 = 2,0		550	3,9-4,2
							450 max. 1,0		950	5,6-6,0
									1350	9,4

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	102,5-103,5 (100,5-105,5)	1290-1300*	800	96,0-99,0 (94,0-101,0)	100	133,0-143,0 (130,0-146,0)	1250	11,5+0,1
			500	max. 94,0 (max. 96,0)	250	=18,0-18,6 mm RW 7,0 mm RW	500	11,9+0,1
							810	11,8+0,1
							1035	11,5+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2
3.85
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B17

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p14
4. Edition
tropicalized version

En

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 965 DL
Komb.-Nr. 0 400 846 424
0 400 846 486

supersedes: 4.85
company: MAN
engine: D2566 M/MF (1)
177 kW (240 PS)
MAN-Nr. 2-7283
D2566 MF-Tropen
168 kW/1500 min
(2)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,5-12,7	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,1	100	min. 7,6	-	-
				4,0	1185-1215			250	6,0-6,2		
				1300	9- 1,0			360-420	= 2,0		
								500	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
(1) 1100	124,5-126,5 (122,5-128,5)	-	750	110,5-113,5 (108,0-116,0)	100	121,5-131,5 (118,5-134,5) = 14,0 - 14,6 mm RW
			500	max. 113,5 (max. 116,0)		

Checking values in brackets

B. Governor Settings

MAN 11,1 p 14

- 2 -

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,0 4,0 1300	1145-1160 1185-1215 0-1,0	250	6,1	100 250 360-420 500	min. 7,6 6,0-6,2 =2,0 max.1,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At $1145 - 1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
(2) 1100	118,0 - 120,0 (116,0 - 122,0)		500 750	102,0 - 108,0 (100,0 - 110,0) 106,0 - 109,0 (104,0 - 111,0)	100 250	125,0 - 135,0 (120,0 - 140,0) 9,0 - 15,0 (6,5 - 17,5)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

tropicalized version

WPP 001/4 MAN 11,1 p 21

En 1. Edition

PES 6 A 95 D 410 LS 2542
Komb.-Nr. 0 400 846 504

RQ 250/1000 AB 1137-2 L

supersedes
company MAN
engine D 2566 M (1)
177 kW/1500 min⁻¹
MAN-Nr. 2-7409
D 2566 M-Tropen-1
168 kW/1500 min⁻¹
(2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,5-1,6}
(1,45-1,65) mm (from BDC) Zyl. 6

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	12,0+0,1	12,5 - 12,7	0,3(0,6)			
250	6,5-6,7	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,0	100	min.7,5	-	-
				4,0	1195-1225			250	5,9-6,1		
								370-410	=2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145 - 1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
(1) 1100	124,5 - 126,5 (122,5 - 128,5)	-	500	107,5 - 113,5 (105,5 - 116,5)	100	121,5 - 131,5 (118,5 - 134,5) = 14,4 - 15,0 mm RW
			750	113,0 - 116,0 (110,5 - 118,5)	250	6,6 mm RW

Checking values in brackets

B. Governor Settings

MAN 11,1 p 21

- 2 -

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6 - 16,4	600	16,0	11,0	1145-1160	250	6,0	100	min. 7,5	-	-
				4,0	1195-1225			250	5,9- 6,1		
								370-410	= 2,0		

Torque control travel on flyweight assembly dimension a - mm Speed regulation At $1145-1160 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2	3	4	5	6	7	
(2)		-	500	102,0 - 108,0	100	125,0 - 135,0	
1100	118,0 - 120,0 (116,0 - 122,0)		750	(100,0 - 110,0) 106,0 - 109,0 (104,0 - 111,0)	250	(120,0 - 140,0) 9,0 - 15,0 (6,5 - 17,5)	

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12

Torque control travel on flyweight assembly dimension a - mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2	3	4	5	6	7	

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11.1 p 20
4. Edition

En

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 1177 DL
Komd.-Nr. 0 400 846 516 (MF)
0 400 846 518 (M)

superseded by 5.8;
company MAN
engine D 2566 M/MF
177 kW/2200 min⁻¹
MAN-Nr. 2-7440 (MF)
2-7441 (M)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,5-1,6 \\ (1,45-1,65) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0±0,1	12,5 - 12,7	0,35(0,6)			
250	5,3-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1115	15,2-17,8	-	-	-	ca. 13	100	min. 8,2	200	0,7-0,9
ca. 47	11,0 4,0 1300	1140-1150 1180-1210 0-1,0					250 335-395=2,0	6,7-6,9	500 800 1100	3,4-3,8 4,9-5,4 7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750 500	113,0-116,0 (110,5-118,5) 107,5-113,5 (105,0-116,0)	100 250	121,5-131,5 (118,5-134,5) = 14,7-15,3 mm RW 6,8 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 16

1. Edition

En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2194 L
Komb.-Nr. 0 400 876 326

superseded by **KHD**
company **BF 6 L 913**
engine **Schlepper DX 7.10**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5-2,6$
(2,45-2,65) mm (from BDC) RW=9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1200	12,4+0,1	8,4-8,5	0,3(0,45)			
325	7,4-7,6	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 17	325	7,0	1200	12,4-12,5
	X = 4,0						325	7,4-7,6	500	13,5-13,6
ca. 54	11,4	1240-1250					595-655=2,0		925	12,9-13,1
2a	4,0	1320-1350								
	1485	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1200	84,0-85,0 (82,0-87,0)	1240-1250*	-	-	100	17,0-17,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

B23

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 3,0 a 1

1. Edition

En

PES 3 A 90 D 410/3 RS 2640

RSV 325-1150 AOC 2157-1 L

supersedes -

Komb.-Nr. 0 400 863 006

company KHD

engine F 3 L 913

37 kW /2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,5-2,6}{(2,45-2,65)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque control valve) mm
1	2	3	4	2	3	6
1140	9,6-9,7	6,6-6,7	0,3(0,45)			
325	7,6-7,8	1,0-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
			4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-0,7	-	-	-	ca. 23	325	7,2	1140	9,6-9,7
	x = 4,25						325	7,6-7,8		500
ca. 23 2a	8,6	1175-1185				510-570	= 2,0	1040	800	9,9-10,0
	4,0	1230-1260								9,7-9,9
	1430	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
140	65,5-66,5 (63,5-68,5)	1175-1185*	500	50,5-52,5 (48,0-55,0)	100	13,0-13,6 mm RW	-	-
			800	58,5-60,5 (56,0-63,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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B24

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 EIC 3,9 h
3. Edition

En

PES 6 A 90 D 320 RS 2674
Komb.-Nr. 0 400 876 318

RSV 300-1150 AOB 2001-2 R
AOC 2001-2 R

supersedes 4.84
company Eicher
engine EDL 6-4/5/6
109 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,2 - 2,3 \\ (2,15-2,35) \end{matrix}$ mm (from BDC)

Test ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1125	12,0+0,1	7,8-7,9	0,25(0,5)			
300	8,3-8,5	1,3-2,3	0,3(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	1	5	6		rev/min	mm	rev/min	mm
1	2	3				7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 14	300	7,9	-	-
	x = 3,0						100	min. 19,5		
ca. 39	11,0	1165-1175					300	8,3-8,5		
2a	4,0	1205-1235					385-445	= 2,0		
	1375	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational speed limit Note changed to .) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1125	77,5-78,5 (75,5-80,5)	1165-1175*	-	-	100	127,0-137,0 (124,0-140,0) = 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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5.85

C1

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VAL 6,6 a

2. Edition

En

PES 6 A 95 D 320 RS 2684 RSV 325-1050 AOC 2178-2 R

Komb.-Nr. 0 400 876 321

supersedes 5.84
company Valmet
611 D
engine 79 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,5-2,6 \\ (2,45-2,65) \end{matrix}$ mm (from BOS) $\begin{matrix} RW=9,0-12,0 \\ \text{mm} \end{matrix}$

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	7,9-8,0	6,5-6,7	0,35(0,6)			
325	4,6-4,8	1,3-1,7	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min.			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 26	325	4,2	1050	7,9-8,0
	x = 5,0								500	8,6-8,7
ca. 44	6,9	1090-1100					325	4,6-4,8	840	8,2-8,4
2a	4,0	1135-1165					420-480	=2,0		
	1295	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)	Note changed to)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
1050	1090-1100*	500	65,0-67,0 (63,0-69,0)	100	57,0-60,0 (54,5-62,5)	19,5-21,0 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

C2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 5,5 p

1. Edition

En

PES 6 A 80 D 410 RS 2697

RQV 300-1350 AB 1175-1 L

supersages

Komb.-Nr. 0 400 846 541

compafiati

engine 8060, 24.642

103 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,2-2,3$
($2,15-2,35$) mm (from BDC) ; RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	12,7+0,1	7,5-7,6	0,25(0,4)			
300	8,1-8,3	0,9-1,5	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100	min. 9,7	250	0,2-0,5
ca. 60	11,7 4,0 1650	1390-1400 1530-1560 0 - 1,0					300 900	8,1-8,3 max. 1,0	550 1000 1550	3,0-3,4 5,2-5,4 9,7
						350-450 ③a				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control ⑤ Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
LDA 1350	0,7 bar 75,0-76,0 (73,5-77,5)	1390-1400 *	LDA 800	0,7 bar 69,0-71,0 (67,0-73,0)	100	115,0-125,0 (112,0-128,0)	1350 500	12,7+0, 12,7+0,2
			LDA 500	0 bar 43,0-45,0 (41,5-46,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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C3

D. Adjustment Test for Manifold Pressure Compensator

FIA 5,5 p

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PESS 6 A..RS 2697 +RQV.. AB 1175-1L	0,70	0 0,38 0,33	12,7-12,8 10,9-11,0 12,2-12,3 11,4-11,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 FOR 4,4 a

1. Edition

En

PES 4 A 95 D 410 RS 2699

RS 350/1400 A2B 2149-1 L

supersedes -

Komb.-Nr. 9 400 085 237

company Ford
engine FTO 4,4 L
68 kW

TEST-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,15-3,25} (3,10-3,30) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1400	9,2-9,3	5,7-5,9	0,35(0,6)			
350	6,4-6,6	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	FH ca.3	350	6,5	1400	9,2-9,3
	x =						280	7,4-8,0	500	10,1-10,2
FH max.	8,2	1445-1455					450	3,8-4,6	1000	9,8-10,0
VH ca.63	4,0	1510-1540					550	max. 3,0	1200	9,3-9,6
(2a)	1650	0,3-1,7					1450	max. 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1400	57,0-59,0 (55,0-61,0)	1445-1455*	500	53,5-56,5 (51,5-58,5)	100	112,0-122,0 = 19,0- 21,0 mm RW	-	-	
			1000	67,0-70,0 (65,0-72,0)					

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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C5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 5,9 c

1. Edition

En

PES € A 90 D 320 RS 2701 RSV 350-1150 A2B 2097-1R

Komb.-Nr. 9 400 085 239

superseded
company MWM
engine TD 229-6
135 PS

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,65-2,75} (2,60-2,80) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,8-9,9	7,1-7,2	0,3 (0,5)			
350	5,9-6,1	1,1-1,5	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 22	350	5,5	1150	9,8-9,9
	X =						100	min. 19,0	500	10,4-10,5
ca. 48	8,8	1190-1200					350	5,9-6,1	700	10,3-10,6
(2a)	4,0	1240-1270					570-630	= 2,0	950	10,0-10,3
	1350	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)	rev/min	Note: changed to () rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	70,5-71,5 (68,5-73,5)	119,0-1200*	500	62,5-64,5 (60,0-67,0)	100	19,0-21,0 mm RW	-	-
			700	67,5-69,5 (65,0-72,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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C6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 a

1. Edition

En

PES 4 A 90 320 RS 2702 RSV 350-1150 A 2 B 2129-4 R
Komb.-Nr. 9 400 085 240

supersedes
company MWM
engine D 229-4
75 PS

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,65-2,75} (2,60-2,30) mm (from BDC) ; RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	8,6-8,7	5,9-6,0	0,3 (0,5)			
350	5,9-6,1	1,1-1,5	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 23	350	5,5	1150	8,6-8,7
	x = 3,75						100	min. 19,0	500	9,8-9,9
ca. 46	7,6	1190-1200					350	5,9-6,1	800	9,4-9,6
(2a)	4,0	1225-1255					590-650	= 2,0	1000	9,0
	1400	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	59,0-60,0 (57,0-62,0)	1190-1200*	500	59,5-61,5 (57,0-64,0)	100	19,0-21,0 mm RW	-	-
			800	64,0-66,0 (61,5-68,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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C7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 2, 9 a

1. Edition

En

PES 3 A 90 D 320 RS 2703
Komb.-Nr. 9 400 085 241

RSV 350-1150 A 2 B 2129-4 R

supersedes
company MWM
engine D 229-3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,65-2,75}{(2,60-2,80)}$ mm (from BDC) $R_{iw} = 9,0-12,0$ mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,6-8,7	5,9-6,0	0,3 (0,5)			
350	5,9-6,1	1,1-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 23	350	5,5	1150	8,6-8,7
	x = 3,75						100	min.19,0	500	9,8-9,9
ca. 46	7,6	1190-1200					350	5,9-6,1	800	9,4-9,6
②a	4,0	1225-1255					590-650 = 2,0		1000	8,8-9,1
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to .)	③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	59,0-60,0 (57,0-62,0)	1190-1200*	500	59,5-61,5 (57,0-64,0)	100	19,0-21,0 mm RW	-	-
			800	64,0-66,0 (61,5-68,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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C8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 5,9 b

1. Edition

En

PES 6 A 90 D 320 RS 2705
Komb.-Nr. 9 400 085 246

RSV 350-1400 A 2 B 2179-1 R

superseded by
company MWM
engine A 229-6 PID

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,3+0,1	8,6-8,7	0,3 (0,5)			
325	6,4-6,6	1,3-1,7	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev./min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev./min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev./min 10	Control rod travel mm 11
			4	5	6		rev./min 8	Control rod travel mm 9		
loose	800	0,3-1,0	-	-	-	ca. 18	325	6,0	1400	10,3-10,4
ca. 62	X =						100	min. 19,0	500	11,0-11,1
(2a)	9,3	1440-1450					325	6,4-6,6	900	10,7-11,0
	4,0	1515-1545					430-490	= 2,0		
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev./min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev./min 1	cm ³ /1000 strokes 2		rev./min 4	cm ³ /1000 strokes 5	rev./min 6	cm ³ /1000 strokes 7	rev./min 8	Control rod travel mm 9
1400	85,5-86,5 (83,5-88,5)	1440-1450*	500	87,0-89,0 (84,5-91,5)	100	19,0-21,0 mm RW	325	4,25
			900	90,0-92,0 (87,5-94,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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C9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 CAS 8,3 a

2. Edition

En

PES 6 A 100 D 420 LS 3024 US-EP/RSV 375-1100 A2B 2062 DR

Komb.-Nr. 9 400 230 018

superseded 11.82

company Case

engine A-504 BDT
210 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,0-2,1$
 $(1,95-2,15)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,6+0,1	14,0-14,2	0,3 (0,6)			
375	6,5 - 6,6	1,8-2,4	0,3 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 23	375	6,0	1100	11,6+0,1
	x =						100	min. 19,0	700	12,0+0,3
ca. 50	10,6	1140-1150					375	6,4 - 6,6	600	12,1+0,1
2a	4,0	1205-1235					410-470	= 2,0		
	1260	0,3-1,7					800	max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	139,5-141,5 (137,5-143,5)	1140-1150*	700	142,0-148,0 (140,0-150,0)	100	130,0-150,0 = ca. 17,0 mm RW	375	6,5
			600	max. 158,0 (max. 150,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

Test Bench 1113

C10

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 16,0 c 1

1. Edition

En

PE 12 AM 80 C 610 RS 2005

RQV 200-1150 AB 479 DL

superseded by
company **KHD**
engine **F 12 L 714 A**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15-2,25$
($2,10-2,30$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	7,4 - 7,8	0,4			
1000	9,0	3,9 - 4,7				
1000	15,0	10,3 - 11,4				
200	9,0	2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
ca. 66	1150 1180 1240 1300 1370	15,0-18,0 11,8-15,5 5,5-10,6 0-6,0 0	-	-	-	ca. 10	100 200 300 500 730	7,0-7,6 4,3-6,6 2,6-3,4 1,2-2,6 0	1150	8,3

Torque control travel $s = 1,5$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min ④a	rev/min 4	cm ³ /1000 strokes ⑤b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	71,5-73,5 (70,5-74,5)	1160-1180 *	600 800	74,0-77,0 (72,5-78,5) 75,5-78,5 (74,0-80,0)	100	min. 99,0	1150 1000 800 600 400	0 0,3-0,5 0,7-0,9 1,2-1,4 1,4-1,6

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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C11

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 6,0 j

4. Edition

En

Test ISO 4113

PES 6 MW 100/320 RS 1004
RQV 300...1150 MW 8 / 2R
1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300 $\pm 0,5^\circ$ (0,75°)

supersedes 5,82
company Volvo
engine TD 60

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC bei Regelweg = 9-12 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,3+0,1	9,15-9,35	0,35(0,6)			
300	5,2-5,4	0,95-1,35	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150 1400	15,2-17,8 0-1,0	-	-	-	ca. 11	100 300 370-430 = 2,0	min. 7,0 5,2-5,4	300 800 1190	1,1-1,2 4,3-4,6 9,2
ca. 50	10,3 4,0	1190-1200 1235-1265								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	91,5-93,5 (89,5-95,5)	1190-1200 *			100	20-24 mm RW 120,0-130,0 (117,0-133,0)		
					300	9,5-13,5 (7,0-16,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

C12

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 b

3. Edition

En

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39
0 403 444 101

supersedes 8.83
company: Volvo-BM
TD 45
engine: 85 kW (116 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12.0+0.1	10.0-10.2	0.35(0.6)			
300	6.4-6.5	0.95-1.35	0.35(0.55)			
1000	12.0+0.1		0.55(0.7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min Control rod travel mm 6	④	Degree of deflection of control lever 7	rev/min Control rod travel mm 9	③	rev/min mm 10	11
max.	1100 1350	15.2-17.8 0 - 1.0					ca. 11	300 100	6,4-6,5 min.8,0		
ca. 46	11,0 4,0	1140-1150 1190-1220					③a	380-440 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	④a	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	100-102 (98,0-104,0)	1140-1150*		1000	101,0-105,0 (99,0-107,0)	100 300	min. 140,0 9,5-13,5 (7,0-16,0)		
							100-220 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 d

2. Edition

En

Test ISO 4113

PES 4 MW 100/320 RS 1102
RQV 300-1200 MW 39-2
0 403 444 104

superse: 83
compa: Volvo
engine: TD 45
82,5 kW (112 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
($2,75-2,95$) mm (from BDCRW $9,0-12,0$)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 5	Fuel delivery cm ³ /100 strokes 6	Spring pre-tensioning (torque-control valve) mm 7
700	11,8+0,1	9,5-9,7	0,35(0,6)			
300	6,5-6,6	1,3-1,7	0,35(0,55)			
1000	11,8+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
	2	3	4	5	6	7	8	9	10	11
max.	1200 1450	15,2-17,8 0-1,0				ca. 12	100 300	min. 8,1 6,5-6,6		
ca. 48	10,8 4,0	1240-1250 1290-1320					400-550=2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	95,0-97,0 (93,0-99,0)	1240-1250*	1000	94,0-98,0 (92,0-100,0)	100	19-21 mm RW max. 140 (143)		
						100-220 (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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C14

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 f

En 2. Edition

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39-4
0 403 444 106

supersedes 7.84
company 1.1.70
engine: D 45
82,5 1.7

1-3 - 4 - 2
0-90-180-270 ±0,50(0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-290}{(2,75-2,95)}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	9,4-9,6	0,35 (0,6)			
300	6,4-6,5	1,3-1,7	0,35 (0,55)			
1000	11,7+0,1		0,55 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min mm 6	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min mm 9	Control rod travel mm ③	rev/min mm 10	mm 11
max.	1150 1350	15,2-17,8 0 - 1.0					ca. 12	300 100	6,4-6,5 min.8,0		
ca. 48	10.7 4.0	1140-1150 1195-1225					320-650				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	94,0-96,0 (92,0-98,0)	1140-1150*	1000	96,5-99,5 (95,0-101,0)				
					100	130,0-140,0 (127,0-143,0)		
					300	13,0-17,0 (10,5-19,5)		
					100-220	(80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 e

3. Edition

En

Test ISO 4115

 PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39-5
 0 403 444 107

 1- 3- 4 - 2
 0-90-180-270 ± 0,50 (0,75)

 superseded by 10.84
 company Volvo
 engine D 45
 85 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke $2,80-2,90$ mm (from BDC) bei RW = $9,0-12,0$ mm
 ($2,75-2,95$)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,6+0,1	11,1-11,3	0,35(0,6)			
300	6,4-6,5	1,3-1,7	0,35(0,55)			
1000	12,6+0,1		0,55(0,7)			

 Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100 1350	15,2-17,8 0-1,0				ca. 14	300 100	6,4-6,5 min.8,0		
ca. 48	11,6 4,0	1140-1150 1210-1240					320-450			

 Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	109,0-111,0 (107,0-113,0)	1140-1150*	1000	110,0-114,0 (108,0-116,0)	100	130,0-140,0 (127,0-143,0)		
					300	13,0-17,0 (10,5-19,5)		
					100-220	(80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

C16

4.85

BOSCH

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 6,0 r

2. Edition

En

Testo-ISO 4113

PES 6 MW 100/320 RS 1111
RSV 325-1400 MW 2 A 314
0 403 476 016

supersedes 5.83
company Volvo
engine TAMD 60 C
184 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,10-3,20$ mm (from BDCRW $9,0-12,0$)
($3,05-3,25$)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	13,0-0,1	12,1-12,3	0,35(0,6)			
325	5,6-5,7	0,95-1,35	0,35(0,55)			
1400	13,0+0,1		0,5 (0,7)			
1000	10,5+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3				7	8	9	10	11
loose	800	0,3-1,0				ca. 22	325	5,1-5,2	350	13,5+0,1
	x = 2,75						325	5,6-5,7	500	13,5+0,1
ca. 60	1440-1450 = 12,0						100	min.19,0		
2a	1505-1535 = 4,0									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,8 bar 121,0-123,0 (119,0-125,0)	1440-1450*	LDA 1400	0,8 bar 119,0-123,0 (117,0-125,0)	100 325	130,0-140,0 (127,0-143,0) 9,5-13,5 (7,0-16,5)	325	5,6-5,7
			LDA 1000	0 bar 83,0-85,0 (81,0-87,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1111 mit RSV...314	0,8 bar	0 bar	13,0-13,1
		0,48 bar	10,5-10,6
		0,18 bar	12,4-12,5
			11,1-11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384-1 RQ 225/1000 PA 571
Komb.-Nr. 0 401 846 465

supersedes 7.84
company: DAF
engine DKDL 1160
125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test oil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,4+0,1	9,8-10,0	0,35(0,6)			
250	7,5-7,7	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,6	1045-1060 1100-1130 1250	250	7,6	100 250 345-385=2,0	min,8,4 7,5-7,7 =2,0	600 1000 820 900	11,4-11,5 10,6-10,8 11,0-11,2 10,8-11,1

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 43°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
600	98,0-100,0 (96,0-102,0)	600	1000	93,0-97,0 (90,5-99,5)	100	180,0-220,0 (176,0-224,0) = 19,5-21,0 mm RW
					250	9,0-13,0 (6,5-15,5)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 6

5. Edition

tropicalized version

En

PES 6 P 120 A 720 LS 388 RQ 250/1100 PA 452

Komb.-Nr. 0 402 046 195

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

superseded by 85

company MAN

engine D 2566 MK (F)
235 kW (1)

D 2566 MKF-Tropen

224 kW (2) MAN-Nr. 1-7980

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC) Zyl. 6; RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH	19,2-20,8 max. 46	600	20,0	10,3 4,0 1400	1145-1160 1185-1215 0 - 1,0	250	6,4	100 250 350-390 = 2,0	min. 7,9 6,3-6,5	100 750 865 975	1,3-11,4 3,1-13,2 12,7-12,9 11,7-12,0

Torque-control travel on flyweight assembly dimension a = 0,7 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 750	1,0 bar 217,0-220,0 (214,0-223,0)		LDA 650	1,0 bar 208,0-213,0 (205,0-216,0)	100	205,0-225,0 (201,0-229,0)
1100 (1)	180,0-185,0 (177,0-188,0)		LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)		
			LDA 500	0 bar 101,0-104,0 (98,0-107,0)		

Checking values in brackets

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C20

B Governor Settings

(2)

MAN 11,1 q 6

- 2 -

Checking of slider PRG check (1)		Full load speed regulation (4)				Idle speed regulation (5)				Torque control (3)	
Control rod travel rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min - 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,3	1145-1160	250	6,4	100	min. 7,9	1100	11,3-11,4
VH =	max. 46°			4,0	1185-1215			250	6,3-6,5	750	13,1-13,2
				1400	0 - 1,0			350-390	= 2,0	865	12,7-12,9
										975	11,7-12,0

Torque control travel on flyweight assembly dimension a **0,7** mm Speed regulation At **1145-1160 min⁻¹** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40 C (104 F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
(2)					100	
LDA 750	1,0 bar 207,0-209,0 (203,0-213,0)	-	LDA 650	1,0 bar 196,0-202,0 (194,0-204,0)		205,0-225,0 (201,0-229,0)
LDA 1100	1,0 bar 171,0-177,0 (169,0-179,0)		LDA 500	0,34 bar 141,0-147,0 (139,0-149,0)		
			LDA 500	0 bar 97,0-99,0 (93,0-103,0)		

Checking values in brackets

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = **500** rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel - diminution difference mm (1)
PES 6 P .. LS 388 + RQ .. PA 452	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes

(1) when n =

rev/min and

gauge pressure =

bar (= maximum full-load control rod travel)

En

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 7.0 g 1

2. Edition

En

PE 6 P 110 A 320 RS 413 Z RQV 250-1200 PA 499

Komb.-Nr. 0 401 846 433

supersedes 2.92

company Volvo

engine TD 70 G

155 kW (210 PS)

Technische ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0-3,1$ mm (from BDC) ($2,95-3,15$)						
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,2+0,1	10,3-10,5	0,4(0,8)			
250	5,2-5,4	1,6-2,0	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 9	100	min. 6,7	200	0,6-0,8
ca. 62	10,2 4,0 1500	1240-1250 1360-1390 0 - 1,0				300-410	250	5,2-5,4	530 870 1200	3,1-3,5 5,6-5,9 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 103,0-105,0 (100,0-108,0)	1240-1250*	LDA 700	0 bar 79,0-82,0 (76,0-85,0)	100	170,0-210,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C22

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6 P..RS 413 Z +RQV .. PA 499	0,70	0	11,2-11,3
		0,38	9,6-9,7
		0,17	11,0-11,1 9,7-9,9

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 12,0 g 3

1. Edition

En

PE 6 P 120 A 320 RS 3075 RSV 200-1100 P 1/421-1
Komb.-Nr. 0 401 876 741
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
company Volvo
TID 121 K
engine 280 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7} (2,55-2,75) mm (from SDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque control valve) mm
1	2	3	4	2	3	6
700	11,4+0,1	22,9 - 23,1	0,5(0,9)			
200	5,6-5,8	2,3 - 2,9	0,6(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,7	-	-	-	ca.20	200	5,2	-	-
	x = 4,0						200	5,6-5,8		
ca.58	10,4	1140-1150					255 - 315	=2,0		
2a	4,0	1165-1195								
	1340	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	229,0 - 231,0 (226,0-234,0)	1140-1150*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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3.85

C24

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,9 a
4. Edition

En

PES6 P 120 A 720 LS 470 RQ 250/1100 PA 684
Komb.-Nr. 0 402 046 288
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 9.84
company MAN
engine D 2866 KF
265 kW/2200 min⁻¹
MAN-Nr. 2-7355

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	23,8-24,0	0,5(0,9)			
250	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
600 VH = max. 46°	19,2-20,8	20,0	10,3 4,0 1300	1145-1160 1180-1210 0-1,0	250 5,3	100 250 315-355 = 2,0	min.6,8 5,2-5,4	750 1100 935 990	12,5-12,6 11,3-11,4 12,4-12,6 11,7-12,0		

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	cm ³ /-1000 strokes 5	cm ³ /1000 strokes/mm 7	Control rod travel mm 3a	Control rod travel mm 3b	Control rod travel mm 6	Control rod travel mm 6
LDA 750 1,0 bar 238,0-240,0 (235,0-243,0)	LDA 650 1,0 bar 239,0-245,0 (236,0-248,0)		-		100	225,0-245,0 (221,0-249,0)
LDA 1100 1,0 bar 214,0-218,0 (211,0-221,0)	LDA 500 0,4 bar 191,0-197,0 (188,0-200,0)					
	LDA 500 0 bar 139,0-141,0 (136,0-144,0)					

Checking values in brackets

Test Specifications

D1

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel: ^{diminution} difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..LS470 + RQ..PA684	1,0	0	12,5 - 12,6
		0,40	9,3 - 9,4
		0,11	11,1 - 11,2
			9,4 - 9,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 15,8 f

5. Edition

En

PE 10 P 110 A 920/5 LS 3073 RQV 300-1150 PA 549

Komb.-Nr. 0 401 849 703

1-10-9 - 4- 3 - 6 - 5 - 8 - 7 - 2

0-27-72-99-144-171-216-243-288-315 ° ± 0,5 ° (± 0,75 °)

supersedes 3.84

company: KHD

engine: BF 10 L 413 F
265 kW/2050 min⁻¹

bzw. 259 kW (Maxidyne)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	14,4-14,6	0,4(0,75)			
300	6,9-7,1	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1220	15.2-17,8	-	-	-	ca. 24	100	min. 8,4	250	0,5-0,8
ca. 64	9.8 4.0 1400	1190-1200 1270-1300 0 - 1,0					300	6,9-7,1	550	3,6-4,2
							465-525, = 2,0		850	5,4-5,7
									150	7,8

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0.9 bar 144,0-146,0 (141,0-149,0)	1190-1200 *	LDA 500	0 bar 98,0-102,0 (95,0-105,0)	100	130,0-160,0	700 150 050 025	2,0+0,1 0,7+0,2 1,2+0,2 1,5+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.85

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D3

D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 f

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 10 P .. LS 3073 + RQV .. PA 549	0,90	0	12,0-12,1
		0,50	10,0-10,1
		0,35	11,5-11,6
			10,4-10,6

Notes

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 PEN 12,0 g
1. Edition

En

PE 6 P 120 A 320 RS 3075 RQ 750 PA 694
Komb.-Nr. 0 401 846 786
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes -
company: Volvo-Penta
engine: TD 120 BHC/BRC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7} (2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,8-9,9	18,3 - 18,7	0,5(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	8,8	750-755	-	-	-	-	-	-
				4,0	776-789						
				850	0 -1,0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 750 - 755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
700	183,0 - 187,0 (181,0 - 189,0)	-	-	-	-	-

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 i 10

1. Edition

En

PES 6 P 120 A 820 LS 3077-10 RQ 300/1100 PA 585-2
 Values only apply to test nozzle-and-holder
 assembly 1 688 901 019 and fuel-injection test
 tubing 1 680 750 067

supersedes -
 company: Daimler-Benz
 engine: OM 407 LA

Komb.-Nr. 0 402 046 722

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke **4,0-4,1** mm (from BDC) **Zyl. 6**

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,5+0,1	21,3-21,5	0,5			
300	5,5-5,7	1,4-2,0	0,8			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
650	VH =	19,2-20,8	max. 46°	650	20,0	12,5	4,0	1145-1160	1200-1230	300	4,9	100	min. 6,5	300	4,8-5,0	370-410	=2,0mm	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At **1145-1160 min-1** 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm Control rod travel 7	
LDA 1100	0,70 bar	213,0-215,0		-	LDA 600	0,70 bar	201,0-207,0	100	170,0-190,0				
					LDA 500	0 bar	146,0-148,0						

Checking values in brackets

4.85

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D6

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel: ^{diminution} difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..LS3077-10 + RQ..PA 585-2	0	0,31 0,41	10,9-11,1 11,9-12,0 12,7-13,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,4 i 11

1. Edition

En

PES 6 P 120 A 820 LS 3077-10 RQV 300-1100 PA 605-1
Komb.-Nr. 0 402 046 726

supersedes

company Daimler-Benz

engine OM 407 LA

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prastroke $4,0-4,1$ mm (from BDC) Zyl. 6; RW=9,0 - 12,0 mm
(3,95-4,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	13,5+0,1	21,3-21,5	0,5(0,9)			
300	5,5-5,7	1,4-2,0	0,8(1,2)			
600	-	C, Sp. 4 u. 5	0,8(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed			Sliding sleeve travel			
Degree of deflection of control lever	rev/min	Control rod travel mm	①a	Degree of deflection of control lever	rev/min	Control rod travel mm	④	Degree of deflection of control lever	rev/min	Control rod travel mm	③	①	
1	2	3	②a	4	5	6		7	8	9		10	11
max.	1100	15,2-17,8		-	-	-		ca. 11	100	min. 6,0		300	1,7-1,8
ca. 63	12,5	1140-1150							300	4,8-5,0		500	3,2-3,5
	4,0	1210-1240										800	4,6-5,0
	1350	0 - 1,0						325-415				1100	7,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 213,0-215,0 (210,0-218,0)	1140-1150 *	LDA 600	0,7 bar 201,0-207,0 (198,0-210,0)	100	170,0-190,0 (166,0-194,0)	-	-
			LDA 500	0 bar 146,0-148,0 (143,0-151,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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D8

D. Adjustment Test for Manifold Pressure Compensator

MB 11, 4 i 11 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..LS3077-10 + RQV..PA 605-1	0	0,31 0,42	10,9-11,1 11,9-12,0 13,0-13,2

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 120 A 820 LS 3077-10 RQ 300/1100 PA 761
Komb.-Nr. 0 402 046 762
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes -
company Daimler-Benz
engine OM 407 A
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) ⁷yl. 6

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	10,5+0,1	15,2 - 15,4	0,5 (0,9)			
300	5,0-5,2	1,4 - 2,0	0,8 (1,2)			
600	-	C, Sp. 4 u.5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	650	20,0	9,5	1145-1160	300	4,9	100	min. 6,5	-	-
VH	=max. 46°			4,0	1200-1230			300	4,8 - 5,0		
								360-400	= 2,0		

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1100	152,0-154,0 (149,0-157,0)	-	500	150,0 - 156,0 (147,0 - 159,0)	100	150,0 - 170,0 (146,0 - 174,0)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 a 1

1. Edition

En

PES 6 P 110 A 720 RS 3079
Komb.-Nr. 0 402 076 716

RSV 300-1000 P 8 A 486

supersedes -

company

KHD

engine

BF 6 L 413 FR
165 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
($2,75-2,95$) mm (from BDC); RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	13,5+0,1	15,2 - 15,4	0,4 (0,75)			
300	7,6-7,8	1,3 - 1,9	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

Testspec ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-0,7	-	-	-	ca.11	300	7,7	1000	13,5 - 13,6
		x = 2,0					300	7,6-7,8	350	14,7 - 15,3
ca.40	12,5	1040-1050					300-360	= 2,0	550	13,5 - 13,6
2a	4,0	1060-1090								
	1225	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min	Control rod travel		6 Rotational-speed limit Note changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
	cm ³ /1000 strokes	mm		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		3	4	5	6	7	8	9
LDA 1000	0,9 bar 151,5-154,5 (149,0-157,0)		1040-1050*	LDA 750	0,9 bar 152,0-156,0 (149,0-159,0)	100	190,0-210,0 (186,0-214,0)	-	-
				LDA 500	0 bar 123,0-125,0 (120,0-128,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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D11

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 a 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3079 + RSV..P 8 A 486	0,90		13,5 - 13,6
		0	12,4 - 12,5
		0,53	12,9 - 13,0
		0,43	12,6 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 b
4. Edition

En

PES 6 P 110 A 720 RS 3079

RSV 300-1150 P 8/486

supersedes 11.83

Komb.-Nr. 0 402 076 714

.. P 8 A 486

company KHD

engine BF 6 L 413 FRC
199 kW (271 PS)

bei 2300 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) $\begin{matrix} 9,0 - 12,0 \end{matrix}$ mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	14,2+0,1	17,7 - 18,1	0,4 (0,8)			
300	7,2-7,3	1,3 - 1,9	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3 - 1,0	-	-	-	ca. 13	300	6,7	-	-
ca. 48	13,2	1190-1200					300	7,2-7,3		
2a	4,0	1220-1250					300-360	= 2,0		
	1390	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
LDA 1150	0,9 bar 177,0-181,0 (174,0-184,0)	1190-1200*	LDA 800	LDA 500	0,9 bar 175,0-179,0 (172,0-182,0) 0 bar 123,0-125,0 (120,0-128,0)	100	190,0-210,0	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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4.85

D13

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 b

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS 3079 mit .. P 8/486 A 486	1,20		14,2 - 14,3
		0	11,9 - 12,0
		0,57	13,8 - 13,9
		0,35	12,4 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 9,6 a
2. Edition

En

PES 6 P 110 A 720 RS 3079

RSV 300-1250 P 8/486

supersedes 9.82

Komb.-Nr. 0 402 076 715

" P 8 A 486

company KHD

engine BF 6 L 413 FRC

199 kW/2500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke

(2,75-2,95)

mm (from BD ϕ : RW = 9,0 - 12,0 mm

Test ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1250	14,5+0,1	18,0 - 18,4	0,4 (0,8)			
300	7,2-7,3	1,3 - 1,9	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	800	0,3-0,7	-	-	-	ca. 15	300	7,2	1250	14,5-14,6
	x = 4,0						300	7,2-7,3	350	15,7-16,3
ca. 55	13,5	1290-1300					300-360	= 2,0	550	14,5-14,6
2a	4,0	1330-1360								
	1490	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1250	0,9 bar 180,0-184,0 (177,0-187,0)	1290-1300*	LDA 800	0,9 bar 178,0-182,0 (175,0-185,0)	100	190,0-210,0 (186,0-214,0)	-	-
			LDA 500	0 bar 123,0-125,0 (120,0-128,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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D15

D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 a

Test at n = 550 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel
			diminution difference mm (1)
PES 6 P..RS 3079 + RSV..P 8/486 ..P 8 A 486	0,90	0	14,5 - 14,6
		0,57	12,1 - 12,2
		0,30	13,9 - 14,0
			12,8 - 13,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 03

3. Edition

En

PE 6 P 110 A 320 RS 3080-1 RQV 250-1025 PA 589

Komb.-Nr. 0 401 846 768

supersedes 12.63

company: Volvo

engine: TD 100 FA

220 kW (299 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC) = RW 9,0 - 12,0 mm
(2,45-3,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,2±0,1	17,9 - 18,1	0,4(0,8)			2,5 ± 0,1 (2,2 - 2,9)
250	4,3-4,5	1,7 - 2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	15,2-17,8	-	-	-	ca. 9	100	min. 5,8	200	0,7-0,9
ca. 64	12,2	1085-1095					250	4,3-4,5	475	3,9-4,5
	4,0	1160-1190							660	
	1300	0 - 1,0					315-375 = 2,0		bis	5,4-6,6
									945	
									1025	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,75 bar	1085-1095*	LDA	0,75 bar	100	150,0-200,0	-	-
700	179,0-181,0 (176,0-184,0)		1000	170,0-174,0 (167,0-177,0)		(146,0-204,0)		
			LDA	0 bar		= 20,0-21,0		
			700	130,5-133,5 (128,0-136,0)		mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D17

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D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 03

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel	diminution
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	difference
PE6P .. RS 3080-1 + RQV .. PA 589	0,42		12,3 - 12,4	
		0,75	13,2 - 13,3	
		0	10,5 - 10,6	
		0,26	10,8 - 11,1	

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 d 1

1. Edition

En

PE 12 P 110 A 920 LS 3081 RQV 300-1250 PA 696

supersedes

Komb.-Nr. 0 401 840 716

company KHD

1- 4- 9- 8- 5 - 2 - 11- 10- 3 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)engine BF 12 L 413 FC
315 kW /2500 min⁻¹
Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	10,9±0,1	13,0-13,4	0,5(0,8)			
300	6,7-6,9	1,8-2,4	0,7(1,0)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1300	15,2-17,8	-	-	-	ca. 26	100	min.8,2	300	1,2-1,8
ca. 64	9,9	1290-1300					300	6,7-6,9	400	2,5-2,8
	4,0	1380-1410							470	3,0-3,5
	1500	0-1,0							700	4,3-4,5
						310-550			1300	8,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1250	0,75 bar 130,0-134,0 (128,0-136,0)	1290-1300*	LDA 850	0,75 bar 121,5-125,5 (118,5-128,5)	100	130,0-160,0	-	-
			LDA 500	0 bar 75,0-79,0 (72,0-82,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
4.85
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D19

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 3081 + RQV..PA 696	0,75	0 0,42 0,20	10,9-11,0 9,0-9,1 10,5-10,6 9,3-9,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19.0 d 2

1. Edition

En

PE 12 P 110 A 920 LS 3081 RQV 300-750 PA 744

Komb.-Nr. 0 401 840 726

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes

KHD

company BF 12 L 413 FC

engine 263 kW/1500 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,5+0,1	14,9-15,1	0,4(0,75)			
300	6,3-6,5	1,8-2,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	790	15,2-17,8	-	-	-	ca. 19	100	min.7,8	300	1,3-1,4
ca. 55	10,5 4,0 1000	790-800 835-865 0-1,0					300	6,3-6,5	400	2,7-3,7
							350-410	=2,0	470	4,0-4,4
									790	8,5

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	149,0-151,0 (146,0-154,0)	790-800*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D21

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 d 3

1. Edition

En

PE 12 P 110 A 920 LS 3081 RQV 300-1075 PA 746
Komb.-Nr. 0 401 840 727

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12

0-45-60-105-120-165-180-225-240-285-300-315° ± 0,5° (± 0,75°)

supersedes

company KHD

engine BF 12 L 413 F

333 kW/2150 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1075	11,9+0,1	14,8-15,2	0,5(0,8)			
300	6,7-6,9	1,9-2,5	0,7(1,0)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1120	15,2-17,8	-	-	-	ca. 19	100	min. 8,2	300	1,3-1,4
ca. 54	10,9 4,0 1350	1115-1125 1215-1245 0-1,0					300	6,7-6,9	380	2,3-2,7
									430	2,8-3,3
									700	5,3-5,6
									1120	8,5

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1075	0,75 bar 148,0-152,0 (146,0-154,0)	1115-1125*	LDA 650	0,75 bar 143,0-147,0 (140,0-150,0)	100	125,0-155,0 (121,0-159,0)	-	-
			LDA 450	0 bar 122,0-126,0 (119,0-129,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D22

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4.85

D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 d 3

Test at n = 450 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 12 P..LS 3081 + RQV..PA 746	0,75	0	11,9-12,0
		0,41	10,8-10,9
		0,27	11,6-11,7
			11,0-11,2

Notes

(1) when n : rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 19,0 b
1. Edition
En

PE 6 P 110 A 320 LS 3084 RQV 300-750 PA 614
Komb.-Nr. 0 401 846 750

supersedes
company SSCM
engine 6 L 150
316 kW

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDC); RW 0 9,0-12,0 mm
(2,75-2,95)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,0+0,1	24,5-24,8	0,4(0,75)			
300	4,5-4,7	1,8-2,3	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	780	15,2-17,8	-	-	-	ca. 11	100	min.6,1	275	1,3-1,5
ca. 66	12,0 4,0 950	790-800 840-870 0 - 1,0				310-410	300	4,5-4,7	600	5,5-5,8
									750	8,0-8,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	245,0-248,0 (242,5-250,5)	790-800 *	-	-	300	18,0-23,0 (15,5-25,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2
4.85

D24



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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 21,2 a 1

1. Edition

En

PE 8 P 130 A 520/4 RS 3085 RQV 400-750 PA 618
Komb.-Nr. 0 401 848 750

supersedes

company Baudouin

engine 8 P 15

1-2-4-5-6-3-7-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tuhing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,2-3,3}{(3,15-3,35)}$ mm (from BDQ) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,5-8,6	19,1-19,5	0,5(0,9)			
400	3,9-4,1	2,3-2,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	830	15,2-17,8	-	-	-	ca. 16	100	min. 5,6	400	0,9-1,1
ca. 48	7,5 4,0 900	750-755 775-785 0-1,0				355-455	400 400-450 = 2,0	3,9-4,1	475 600 750	1,8-2,3 1,8-2,3 5,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	191,0-195,0 (188,0-198,0)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 21,2 a

2. Edition

En

PE 8 P 130 A 520/4 RS 3085 RQV 400-750 PA 618-1

Komb.-Nr. 0 401 848 750

1-2-4-5-6-3-7-8 je $45^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

superseded by 2.82

company Baudouin

engine 8 P 15

467 kW (635 PS)

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	8,5-8,6	19,1-19,5	0,5(0,9)			
400	3,9-4,1	2,3 - 2,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever mm 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever mm 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever mm 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	830	15,2-17,8	-	-	-	ca. 16	100	min. 5,6	350	0 - 0,2
ca.48	7,5 4,0 900	750-755 775-785 0 - 1,0					400 775-785=2,0	3,9-4,1	455 640 700 750	2,0 2,0-3,8 5,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	191,0-195,0 (188,0-198,0)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 21,2 b

1. Edition

En

PE 8 P 130 A 520 RS 3085-1 RQV 350-900 PA 749
Komb.-Nr. 0 401 838 704
1-2-4-5-6-3-7-8 je 45 ° ± 0,5 ° (± 0,75 °)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
compa~~to~~ MASCOR
engine E 212

Test ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,6-3,7}{(3,55-3,75)}$ mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	8,5-8,6	18,8-19,1	0,5 (0,9)			
350	4,0-4,2	2,2-2,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	950	15,2-17,8	-	-	-	ca. 10	100	min. 5,6	300	1,0-1,2
ca. 58	7,5 4,0 1100	940-950 965-995 0 - 1,0				355-455	350	4,0-4,2	500 700 900	2,8-3,2 4,8-5,1 7,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	188,0-191,0 (185,0-194,0)	940-950 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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E3

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 P 110 A 320 RS 3105-1 RQ 275/1150 PA 653
Komb.-Nr. 0 402 046 737

supersede 9.83
company IVECO-Unic
engine: 8220-32
129 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3} (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,3+0,1	11,7-12,0	0,4(0,75)			
275	5,9-6,1	1,5-2,0	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation Setting point				Idle speed regulation Setting point				Torque control	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600 VH =	19,2-20,8 max. 46°	600	20,0	10,3 4,0 1400	1195-1210 1245-1275 0-1,0	275	6,0	100 min.7,5 275 5,9-6,1 350-390=2,0		1150 600	11,5-11,6 11,5-11,7

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
LDA 1150	0,7 bar 117,0-120,0 (114,5-122,5)	-	LDA 400	0 bar 82,0-85,0 (79,0-88,0)	100	160,0-180,0 (156,0-184,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,6 a 1 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P..RS3105-1 + RQ..PA 653	0,70	0 0,255 0,24	11,3-11,4 10,2-10,3 10,9-11,0 10,4-10,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 3

2. Edition

En

PE 6 P 120A 320 RS 3118-2 RQV 250-900 PA 657-5
Komb.-Nr. 0 401 846 796
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 2.85
company: Volvo
engine: TD 121 FC
232 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6-2,7$
($2,55-2,75$) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,7-20,0	0,5(0,9)			2,5 [±] 0,1 (2,2-2,9)
250	3,3-3,5	1,8-2,3	0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	980	15,2-17,8	-	-	-	ca. 7	100	min. 4,8	200	0,5-0,9
ca. 62	10,4 4,0 1100	940-950 1000-1030 0 - 1,0					250	3,3-3,5	500	4,2-4,8
							280-340 = 2,0	660	-	6,4-6,6
								850		
									900	7,2

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 197,0-200,0 (194,0-203,0)	940-950 *	LDA 700	0 bar 150,0-154,0 (147,0-157,0)	100	240,0-280,0 = 20,0-21,0 mm RW (236,0-284,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2
05.85

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E6

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE 6 P..RS 3118-2 +RQV..PA 657-5	0,70	0 0,43 0,17	11,4-11,5 9,1-9,2 11,2-11,3 9,2-9,7

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 6 P 110 A 320 LS 3805 RQ 300/1000 PA 187

supersedes 3.82

Komb.-Nr. 0 401 846 762

company Daimler-Benz

1 - 6 - 3 - 5 - 2 - 4

engine OM 421

0 -75 -120-195-240-315° ± 0,5° (± 0,75°)

140 kW (190 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0 - 4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) $\begin{matrix} 1, 6 \\ 2, 6 \end{matrix}$

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,5+0,1	12,1 - 12,3	0,4(0,8)			
300	8,0-8,2	1,5 - 2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
650	13,0-14,0	650	13,5	10,6 4,0	1045-1060 1080-1110	300	8,1	100 300 430-470 = 2,0mm	min.9,5 8,0-8,2	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1045 - 1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3a	Control rod travel mm 3a	Control rod travel mm 3b	Control rod travel mm 3b	Control rod travel mm 6	Control rod travel mm 6
1000	120,5 - 122,5 (117,5 - 125,5)	-	-	600	102,0 - 106,0 (99,0 - 109,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,0c

2. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 LS 3805

RQ 300/1150 PA 187-2 R

Komb.-Nr. 0 401 846 723

supersedes 10.79

company Daimler-Benz

engine: OM 421

(158,0kW - 215PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDC) $\Delta r = 1,6$, $R = 9,0-12,0$ mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,5-12,6	12,2 - 12,4	0,4 (0,75)			
300	8,3-8,5	1,1 - 1,7	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
600	13,8-14,6	600	14,0	11,5	1195-1210	300	8,4	100	min. 9,9	1150	12,5-12,6
				4,0	1245-1275			300	8,3-8,5	600	12,5-12,7
				1400	0 - 1,0			430-470=2,0			

Torque-control travel
on flyweight: assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	5	7
1150	122,0 - 124,0 (119,5 - 126,5)	600	600	114,0 - 118,0 (111,0 - 121,0)	100	130,0 - 150,0 (126,0-154,0)

Checking values in brackets

4.85

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E9

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 i 1
3. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 320 LS 3805 RQV 300-1150 PA 524-6

supersedes 83
company: Daimler-Benz
engine: OM 421
148 kW (201 PS)

1 - 6 - 3 - 2 - 4
0 -75 -120-195-240-315° ± 0,5° (± 0,75°)

Komb.-Nr. 0 401 846 756

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0 - 4,1 \\ (3,95 - 4,15) \end{matrix}$ mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	12,7 - 12,9	0,4(0,8)			
300	8,7-8,9	1,6 - 2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 19	100 300	min. 10,0 8,3-8,5	250 550 850 1150	1,0-1,2 3,4-3,7 4,9-5,3 7,6
ca. 65	11,6 4,0 1500	1190-1200 1240-1270 0 - 1,0				330-740				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	127,0-129,0 (124,0-132,0)	1190-1200 *	600	104,5-108,5 (101,5-111,5)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E10

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 320 LS 3805-10 RQ 300/1000 PA 187
Komb.-Nr. 0 401 846 762

supersedes...

company: Daimler-Benz

engine: OM 421

140 kW (190 PS)

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) ^{4,0-4,1} Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,5+0,1	12,1-12,3	0,4(0,8)			
300	8,0-8,2	1,5-2,1	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	10,6 4,0	1045-1060 1080-1110	300	8,1	100 300 430-470	min. 9,5 8,0-8,2 =2,0mm	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1045-1060 min ¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1000	120,5-122,5 (117,5-125,5)	-	600	102,0-106,0 (99,0-109,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 c 4

2. Edition

En

PE 6 P 110 A 320 LS 3805-10 RQV 300-1150 PA 524-4

Komb.-Nr. 0 401 846 748

1 - 6 - 3 - 5 - 2 - 4
0 -75 -120-195-240-315° ±0,5° (±0,75°)

supersedes 10.84

company: Daimler-Benz

engine: OM 421

159 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ ($3,95-4,15$) mm (from BDC) Zyl. 6						
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,2-13,4	0,4(0,8)			
300	7,8-8,0	1,2-1,8	0,4(0,7)			
600	-	C, Sp.4 u.5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 22	100 300 410-470=2,0	min.9,5 7,8-8,0	300 800 1200 1260	1,6-1,8 5,8-6,2 8,2-8,4 10,0
ca. 55	10,7 4,0 1400	1190-1200 1235-1265 0-1,0								

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤ Control rod travel mm	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm 9
1150	132,0-134,0 (129,5-136,5)	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 d 3

1. Edition

En

PE 6 P 110 320 LS 3805-10
Komb.-Nr. 0 401 876 717

RSV 650-1150 P 1 A 820

supersedes

company Daimler-Benz

engine OM 421

159 kW (1)

155 kW (2)

151 kW (3)

1-6-3-5-2-4

0-75-120-195-240-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

4,0-4,1

Port closing at prestroke

(3,95-4,15)

mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,1+0,1	13,0-13,2	0,4 (0,8)			
650	6,0-6,2	1,8-2,4	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 30	650	6,1	-	-
ca. 57	11,1	1160-1170					650	6,0-6,2		
②a	4,0	1185-1205					650-715	= 2,0		
	1300	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note: changed to) rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle ⑤		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130 (1)	130,0-132,0 127,5-134,5	1160-1170*	-	-	100	140,0-160,0 (136,0-164,0)	0	-
(2)	128,0-130,0							
(3)	124,0-126,0							

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 d 1

1. Edition

En

PE 6 P 110 A 320 LS 3805-10
Komb.-Nr. 0 401 876 739

RSV 650-1150 P 1 A 820-3

supersedes Daimler-Benz
company
engine OM 421
159 kW

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (+ 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) RW = 9,0 - 120,0 mm, Zyl. 6

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	12,1+0,1	13,0 - 13,2	0,4 (0,8)			
650	6,0-6,2	1,6 - 2,2	0,4 (0,7)			
975	-	C, Sp. 4 u. 5	0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-0,7	-	-	-	ca. 30	650	6,1	1180	12,0 - 12,1
	x = 4,0						100	min. 19,5	975	12,5 - 12,7
ca. 57 2a	11,1	1210-1220					650	6,0 - 6,2		
	4,0	1240-1260					650 - 715	= 2,0		
	1350	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop		
Test oil temp 40°C (104°F)		Note: changed to) rev/min								
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	8	9
1180	130,0 - 132,0 (127,5 - 134,5)	1160-1170 *	975	130,0 - 134,0 (127,0 - 137,0)	100	140,0-160,0 (136,0-164,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

4.85

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E14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 d 4

1. Edition

En

PE 6 P 110 320 LS 3805-10 RSV 650-1150 P 1/820
Komb.-Nr. 0 401 876 717
1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

supersedes
company Daimler-Benz
OM 421
engine 159 kW (1)
155 kW (2)
151 kW (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC Zyl. 6; RW=9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1130	12,1+0,1	13,0-13,2	0,4(0,8)			
650	6,0-6,2	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 30	650	6,1	-	-
	λ = 3,5						650	6,0-6,2		
	650-715=2,0									
ca. 57	11,1	1160-1170								
2a	4,0	1185-1205								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130		1160-1170*	-	-	100	140,0-160,0 - (136,0-164,0)	-	-
(1)	130,0-132,0 (127,5-134,5)							
(2)	128,0-130,0							
(3)	124,0-126,0							

Checking values in brackets

* 1 mm less control rod travel than col. 2

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4.85

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,0 d 2

1. Edition

En

PE 6 P 110 A 320 LS 3805-10 RSV 650-1200 P 1 A 820-3
Komb.-Nr. 0 401 876 717

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ± 0,5° (± 0,75°)

supersedes
company Daimler-Benz
engine OM 421
159 kW (1)
155 kW (2)
151 kW (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDC) zyl. 6

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1180	12,0+0,1	13,0-13,2	0,4 (0,8)			
650	6,0-6,2	1,6-2,2	0,4 (0,7)			
1000	-	C, Sp. 4 u. 5	0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 30	650	6,1	1180	12,0-12,1
	x = 4,5						650	6,0-6,2	1000	12,5-12,7
ca. 57	11,0	1210-1220					650-715 = 2,0			
2a	4,0	1245-1265								
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1180		1210-1220*	1000	130,0-134,0 (127,0-137,0)	100	140,0-160,0 (136,0-164,0)	0 -	-
(1)	130,0-132,0 (127,5-134,5)							
(2)	128,0-130,0							
(3)	124,0-126,0							

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K

4. Edition

En

PE 8 P 120 A 320 LS 3807 RQV 300-1150 PA 545

1-8-7-2-6-3-5-4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

superse 9,83

company Daimler-Benz

engine: OM 422 A

243 kW (330 PS)

Komb.-Nr. 0 401 848 732

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery		Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
		Difference cm ³ / 100 strokes 4	Fuel delivery cm ³ /100 strokes 3			
1150	10,7+0,1	15,8-16,0	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			
600						
900	-	C, Sp. 1 - 5	0,7(1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min. 6,7	300	1,6-1,8
ca. 54	9,7 4,0 1350	1190-1200 1235-1265 0-1,0					300	5,0-5,2	800	6,0-6,2
							335-405 = 2,0		1200	8,1-8,3
									1260	9,9

Torque control travel a = 0,70 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 157,5-159,5 (154,5-162,5)	1190-1200*	LDA 900	0,7 bar 165,0-169,0 (162,0-172,0)	100	140,0-160,0 (136,0-164,0)	1150	10,7+0,1
LDA 600	0,7 bar 167,0-173,0 (164,0-176,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)			600	11,4+0,1
							900	10,8+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E17

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel
			diminution difference mm (1)
PE 8 P..LS 3807 + RQV..PA 545	0	0,40 0,47	10,3-10,4 10,4-10,5 10,9-11,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 k 1

2. Edition

En

PE 8 P 120 A 320 LS 3807 RQV 300-1150 PA 545-1

supersedes 6.83

1-8-7-2-6-3-5-4- je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company Daimler-Benz

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 007

engine OM 422 LA

276 kW

Komb.-Nr. 0 401 848 754

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test ISO 4113

A. Fuel Injection Pump Settings

 Port closing at p.p. stroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) cyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
750		C, Sp. 4 u. 5	(1,2)			
500						

Adjust the fuel delivery from each orifice according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min. 6,5	300	1,6-1,8
ca. 55	11,0	1190-1200					300	4,8-5,0	800	6,0-6,2
	4,0	1235-1265					330-400=2,0		1200	8,6-8,8
	1400	0-1,0							1270	10,0

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)	1190-1200*	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)	1150	12,0+0,1
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)			750	12,4+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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E19

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807 + RQV..PA 545-1	0	0,40 0,55	10,5-10,7 11,1-11,4 12,2-12,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 g 2

2. Edition

En

PE 8 P 120 A 320 LS 3807 RQ 300/1150 PA 546-1

supersedes 9.83

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

company Daimler-Benz

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

engine OM 422 LA
276 kW

Komb.-Nr. 0 401 848 753

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
(3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	4,8-5,0	1,2-2,0	0,8(1,2)			
750 500	-	C, Sp. 4 u. 5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	19,2-20,8	600	20,0	11,0	1195-1210	300	5,5	100	min.6,5	1150	12,0-12,1
	VH= max. 46°			4,0	1235-1265			300	5,4-5,6	750	12,4-12,5
				1350	0-1,5			365-415	=2,0	900	12,2-12,4

Torque-control travel on flyweight assembly dimension a = 0,23 mm

Speed regulation: At 1195-1210 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/ Control rod travel mm
1	2	3	4	5	6	7
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)	-	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)		

Checking values in brackets

4.85

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E21

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 g 2

- 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	bar	mm (1)
PE 8 P..LS 3807 + RQ..PA 546-1	0	0,40 0,55		10,5-10,7 11,1-11,2 12,2-12,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 K 4

1. Edition

En

PE 8 P 120 A 320 LS 3807 -10 RQV 300-1150 PA 545

1-8-7-2-6-3-5-4 je 45 ° ±0,5° (±0,75°)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes

companion Daimler-Benz
engine OM 422 A
243 kW (330PS)
Komb.-Nr. 0 401 848 732

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testo-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$
 $(3,95-4,15)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,7+0,1	15,7-15,9	0,5(0,9)			
300	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 17	100	min. 6,7	300	1,6-1,8
ca. 54	9,7 4,0 1350	1190-1200 1235-1265 0 - 1,0					300	5,0-5,2	800	6,0-6,2
							355-405=2,0		1200	8,1-8,3
									1260	9,9

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 157,5-159,5 (154,5-162,5)	1190-1200*	LDA 750	0,7 bar 173,5-175,5 (170,5-178,5)	100	140,0-163,0 (136,0-164,0)	1150	10,7+0,1
			LDA 500	0 bar 139,0-141,0 (136,0-144,0)			750	11,0+0,2
							900	10,9+0,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement		Control rod travel	diminution
	Gauge pressure = bar	Gauge pressure =	bar	mm	difference
PE 8 P..LS 3807-10 + RQV..PA 545	0	0,40		10,3-10,4	
		0,47		10,4-10,5	
				10,9-11,1	

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 k 3

1. Edition

En

Testoil-ISO 4113

PE 8 P 120 A 320 LS 3807-10 RQV 300-1150 PA 545-3
Komb.-Nr. 0 401 848 763
1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
Daimler-Benz
company
OM 422 LA
engine
276 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0-4,1$ mm (from BDC) Zyl. 8
(3,95-4,15)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	11,1+0,1	16,7-16,9	0,5 (0,9)			
300	5,1-5,3	1,2-2,0	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1190	15,2-17,8	-	-	-	ca.20	100	min. 6,8	300	6-1,8
ca. 56	10,1	1190-1200					300	5,1-5,3	800	6,0-6,2
	4,0	1250-1280					375-445	= 2,0	1200	8,6-8,8
	400	0 - 1,0							1270	10,0

Torque control travel a = 0,50 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1190-1200 *	LDA	0,7 bar			1150	11,1+0,1
1150	167,0-169,0 (164,0-172,0)		750	181,0-184,0 (178,0-187,0)			750	11,6+0,2
			500	140,0-142,0 (137,0-145,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2
4.85

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F1

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 3 - 2 -

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel-
			diminution difference mm (1)
PE 8 P.. LS 3807-10 +RQV .. PA 545-3	0	0,41 0,49	10,3 -10,4
			10,6 -10,7
			11,2 -11,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-4
Komb.-Nr. 0 401 848 760
1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes -
company: Daimler-Benz
engine OM 422 A
243 kW

Testoil-ISO 4113

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDE) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,5+0,1	15,3-15,5	0,5 (0,9)			
300	5,2-5,4	1,2-1,8	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,1)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,5	1195-1210	300	5,3	100	min. 6,9	1150	10,5-10,6
VH=	max. 46°			4,0	1250-1280			300	5,2-5,4	750	11,1-11,3
				1350	0 - 1,0			365-415	= 2,0		

Torque-control travel on flyweight assembly dimension a = 0,30 mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm Control rod travel 7
LDA 1150	0,7 bar 153,0-155,0 (150,0-158,0)	-	LDA 750	0,7 bar 171,0-174,0 (168,0-177,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 q 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

Pump/governor	Setting	Measurement	Control rod travel
	Gauge pressure = bar	Gauge pressure = bar	diminution difference mm (1)
PE 8P..LS 3807-10 +RQ .. PA 546-4	0	0,45 0,50	10,3-10,5 10,4-10,5 10,8-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-5

Komb.-Nr. 0 401 848 761

1-8-7-2-3-5-4 je 45° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -

company: Daimler-Benz

engine: OM 422 LA

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1+0,1	16,7-15,9	0,5(0,9)			
300	5,4-5,6	1,2-2,0	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
19,2-20,8	20,0	10,1	1195-1210	5,5	min. 6,5	1150	11,1-11,2				
		4,0	1255-1285		5,4-5,6	750	11,6-11,8				
VH = max. 46 °		1350	0 - 1,5		365-415 = 2,0						

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	cm ³ /-1000 strokes 5	cm ³ /-1000 strokes 7	Control rod travel mm Control rod travel	cm ³ /-1000 strokes 5	cm ³ /1000 strokes/mm Control rod travel	Control rod travel	Control rod travel
LDA 1150	0,7 bar 167,0-169,0 (164,0-172,0)	-		LDA 750 0,7 bar 181,0-184,0 (178,0-187,0)	100	140,0-160,0 (136,0-164,0)	
				LDA 500 0 bar 140,0-142,0 (137,0-145,0)			

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3807-10 + RQ.. PA 546-5	0	0,41 0,49	10,5-10,7 10,8-10,9 11.4-11,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,0 e

5. Edition

En

PE 6 P 120 A 320 LS 3810 RQV 350-1150 PA 553

supersedes 9.83

company Daimler-Benz

engine OM 421 A

198 kW (269 PS)

Komb.-Nr. 0 401 846 736

1 - 6 - 3 - 5 - 2 - 4
0 - 75 - 120 - 195 - 240 - 315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
(3,95-4,15) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	11,5+0,1	17,2-17,4	0,5(0,9)			
350	4,6-4,8	1,5-2,0	0,8(1,2)			

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11	
max.	1180	15,2-17,8	-	-	-	ca. 12	100	min.6,5	300	1,0-1,2	
ca. 64	10,5	1170-1180					350	4,6-4,8	580	3,6-3,8	
	4,0	1245-1275							870	5,4-5,6	
	1400	0-1,0				385-505 ③a			1150	8,2	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	172,0-174,0 (169,0-177,0)	1170-1180*	-	-	100	160,0-180,0 (156,0-184,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

F7

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3811-10 RQ 300/1150 PA 556

Komb.-Nr. 0 401 848 734

1-8-7-2-6-3-5-4 je 45 ° ± 0,50 (± 0,75 °)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes

company Daimler-Benz

engine: OM 422 A

243 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,4+0,	16,2-16,4	0,5(0,8)			
300	5,0-5,2	1,4-2,2	0,8(1,2)			
600	-	C, Sp. 4 + 5	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,1-20,8	600	20,0	9,4	1195-1210	300	4,6	100 min. 6,2		-	-
	VH = max. 46 °			4,0	1215-1245			300 4,5-4,7			
								320-360 = 2,0			

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	162,0-164,0 (159,0-167,0)	-	600	152,0-158,0 (149,0-161,0)	100	125,0-145,0 (121,0-149,0)

Checking values in brackets

3.85

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 120 A 320 LS 3811-10 RQ 300/1150 PA 556-1

Komb.-Nr. 0 401 848 759

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes

company Daimler-Benz

engine: OM 422 A

243 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,4+0,1	16,0-16,2	0,5 (0,8)			
300	5,0-5,2	1,4-2,2	0,8 (1,2)			
600	-	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③	
600	19,1-20,8	600	20,0	9,4	1195-1210	300	4,6	100	min. 6,2	-	-																				
VH = max. 46 °										4,0		1215-1245						300		4,5-4,7		320-360 = 2,0									

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes 7		⑥	
1150	160,0-162,0 (157,0-165,0)									600	150,0-156,0 (147,0-159,0)					100	125,0-145,0 (121,0-149,0)				

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6 r

1. Edition

En

PE 8 P 110 A 320 LS 3813-10 RQ 300/1150 PA 187-3
Komb.-Nr. 0 401 848 764
1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes -
company: Daimler-Benz
engine: OM 422

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1} (3,95-4,15) mm (from BDZyl. 8)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,3-13,5	0,4(0,8)			
300	7,9-8,1	1,5-2,1	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,8 (1,1)			

Adjust the fuel delivery from each outlet according to the values in

Test ISO 4113

B. Governor Settings

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12				
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1230-1260 0 - 1,5	300	8,1	100 300 420-460 = 2,0 550	min. 10,2 8,0-8,2 max. 1,8	-	-				

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1195-1210 min-1 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	132,5-134,5 (130,0-137,0)	600	600	109,5-115,5 (106,5-118,5)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

3.85

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F10

Test Specifications Fuel Injection Pumps ② and Governors

PES 5 P 120 A 720 LS 7101 RQ 300/1050 PA 690
 Komb.-Nr. 0 402 745 800
 1-3-5-4-2 je 72° ± 0,5° (± 0,75°)
 Values only apply to test nozzle-and-holder
 assembly 1 688 901 019 and fuel-injection test
 tubing 1 680 750 0 67

supersedes-
 company: Daimler-Benz
 engine OM 429 LA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (5,15-5,35) mm (from BDC Zyl. 5; RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1050	13,8+0,1	20,3-20,5	0,5(0,9)			
300	6,0-6,2	1,2-2,0	0,8(1,2)			
900	-	C, Sp. 4 u. 5	0,8(1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control		
①		Setting point		Test specifications		Setting point		Test specifications		③		
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	
600	19,2-20,8	600	20,0	12,8	1095-1110	300	6,1	100	min.7,7	-	-	
	VH = max. 46°			4,0	1145-1185			300	6,0-6,2			
				1300	0-1,5			380-420	= 2,0			

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1095-1110 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA 1050	0,7 bar 203,0-205,0 (200,0-208,0)	-	LDA 900	0,7 bar 206,0-210,0 (203,0-213,0)	100	160,0-180,0 (156,0-184,0)
LDA 600	0,7 bar 199,0-203,0 (196,0-206,0)		LDA 500	0 bar 155,0-157,0 (152,0-160,0)		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

MB 10,0 c

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 5 P..LS 7101 +RQ..PA 690	0,70	0	13,8-13,9
		0,35	11,8-12,0
		0,24	13,3-13,4
			12,2-12,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications, Fuel Injection Pumps and Governors

WPP 001/4 MB 11,0 i 2

1. Edition

En

PE 6 P 110 A 320 LS 3805 -10 RQV 300-1130 PA 524-6
Komb.-Nr. 0 401 846 756

1-6-3-5-2-4
0-75-120-195-240-315° ± 0,5° (± 0,75 °)

supersedes

Daimler-Benz

OM 421

engine 148 kW (201 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC) Zyl. 6, RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,6+0,1	12,7-12,9	0,4 (0,8)			
300	8,7-8,9	1,6-2,2	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11	
max.	1190	15,2-17,8	-	-	-	ca. 23	100	min. 10,4	300	1,6-1,8	
ca. 55	11,6 4,0 1500	1190-1200 1240-1270 0 - 1,0					300	8,7-8,9	800	5,8-6,2	
							420-480 = 2,0		1200	8,2-8,4	
									1260	10,0	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	127,0-129,0 (124,0-132,0)	1190 - 1200	600	104,5-108,5 (101,5-111,5)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2
4.85

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F13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 3,9 b 1

1. Edition

En

PES 4 A 80 D 320 RS 1282-1 RS 350/1500 A 2 B 2073-2 R

Komb.-Nr. 9 400 085 243

supersedes
company MWM
engine D 229-4

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,65-2,75}{(2,60-2,80)}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1500	9,2-9,3	5,7-5,8	0,25 (0,4)			
350	5,9-6,1	0,8-1,1	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	FH ca. 32	350	6,0	1500	9,2-9,3
	X =						300	6,6-7,2	500	10,9-11,0
FH max.	8,3	1540-1550					400	4,8-5,6	900	10,5-10,7
VH ca. 64	4,0	1585-1615					550	max. 3,5	1200	9,8-10,1
2a	1700	0,3-1,7					1450	max. 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ...)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
500	1540-1550*	500	62,0-64,0 (60,0-66,0)	100	19,0-21,0 mm RW	-	-		
		900	65,0-67,0 (63,0-69,0)						

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

F14

F14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 KHD 1 g 17

1. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1175 A 8 C 657-1 L
Komb.-Nr. 0 400 464 129

supersedes
company KHD
engine F 4 L 912
Schlepper DX 3.70

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 1,9-2,0 \\ (1,85-2,05) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel		Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
				2	3		
1175	10,8+0,1	5,8-5,9	0,25(0,4)				
325	8,4-8,6	1,1-1,7	0,2 (0,3)				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	2 mm	3 mm rev/min	4	5	6		7 rev/min	8 mm	9 rev/min	10 mm
loose	800	0,3-1,0	-	-	-	ca. 17	325	8,0	1175	10,8-10,9
		X = 4,0					325	8,4-8,6	500	11,6-11,7
ca. 51	9,8	1215-1225					445-505=2,0		1025	11,2-11,4
2a	4,0	1260-1290								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
1 rev/min	2 cm ³ /1000 strokes		3 rev/min	4 cm ³ /1000 strokes	5 rev/min	6 cm ³ /1000 strokes	7 rev/min	8 Control rod travel mm
1175	58,0-59,0 (56,5-60,5)	1215-1225*	800	56,0-58,0 (54,0-60,0)	100	120,0-130,0 (117,0-138,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

F15

645

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 VMA 14,9 a

1. Edition

En

PES 8 A 90 D 410 LS 2373 RSV 250-750 A 1 B 623 L

Komb.-Nr. 0 400 878 008

1-8-7-2-6-5-4-3 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes

company Motori VM

engine V 130/2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,3-3,4$
 $(3,25-3,45)$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	10,5+0,1	9,0-9,1	0,3			
250	6,4-6,6	1,0-1,6	0,25			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3					8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 18	250	6,5	750	10,5-10,6
	$\lambda = 4,0$						250	6,4-6,6	450	10,5-10,6
ca. 47	9,5	790-800					255-315=2,0		300	11,8-12,4
2a	4,0	800-830					**			
	965	0,3-1,7								

The numbers denote the sequence of the tests

** Set idle auxiliary-spring at 2 mm control-rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	89,5-90,5	790-800*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VMA 4,9 a
1. Edition

En

PES 4 A 90 D 410 RS 2510
Komb.-Nr. 0 400 874 215

ER/RSV 250-900 A1 B1029L

supersedes -
company Motori VM
engine VM 114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
between control-rod
travel 9 mm and max.
6,0-7,5° camshaft

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40
(3,25-3,45) RW 9 mm (from 8DC) RW=7,5-10,5 mm

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	10,5±0,1	6,6 - 6,7	0,3(0,45)			
250	8,0-8,5	0,6 - 1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 24	250	5,5	880	10,5-10,6
	x = 3,0						100	min.19	450	10,5-10,7
							250	5,9-6,1	300	11,7-12,3
ca.48	9,5	920-930					330	360 ±2,0		
2a	4,0	955-985					450	0 - 1		
	1100	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note: changed to ..) rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	880	66,0 - 67,0 (64,0 - 69,0)	920-930 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VMA 7,3 a

1. Edition

En

PES 6 A 90 D 410 RS 2511

ER/RSV 250-900 A1 B1029L

supersedes -

company Motori VM

Komb.-Nr. 0 400 876 262

engine VM 116

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40
(3,25-3,45) mm (from BDC) RW=7,5-10,5 mm

Port closing difference
between control-rod
travel 9 mm and max.
6,0-7,5° camshaft

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
880	10,5+0,1	6,6 - 6,7	0,3(0,45)			
250	8,4-8,6	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2		Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7	Lower rated speed rev/min 8		Control rod travel mm 9	3 Torque control rev/min 10		Control rod travel mm 11
	Control rod travel mm rev/min 3						rev/min 8	Control rod travel mm 9		rev/min 10	Control rod travel mm 11	
loose	800	0,3-1,7	-	-	-	ca. 17	250	8,0	880	10,5-10,6		
		x = 3,0					100	min.19,5	450	10,5-10,7		
							250	8,4-8,6	300	11,7-12,3		
ca.44	9,5	920-930					415 - 475 = 2,0					
2a	4,0	955-985										
	1100	0,3-1,7										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1		cm ³ /1000 strokes 2		6 Rotational-speed limit. Note changed to ... rev/min 3		3a Fuel delivery characteristics rev/min 4		cm ³ /1000 strokes 5		Starting fuel delivery idle rev/min 6		cm ³ /1000 strokes 7		5 4a Idle stop rev/min 8		Control rod travel mm 9	
880	66,0 - 67,0 (64,0 - 69,0)	920-930 *	-	-	-	-	-	250	8,5								

Checking values in brackets

* 1 mm less control rod travel than col. 2

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 16,0 d

9. Edition

En

Testoil-ISO 4113

PE10A90D520/5 LS 2515

RQV 250-1250 AB993DR

supersedes 5.85

RQ 250/1250 AB832DR ./.

company MAN

RQ 250/1250 AB992DR ./.

engine: D 2530 MF

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2
0 -45-72-117-144-189-216-261-288-333° ±0,5°(0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{1,50-1,60} (1,45-1,65) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5-11,6	10,2-10,3	0,3(0,45)	11,5-11,6	10,3-10,4	
250	7,4-7,6	0,9-1,5	0,2(0,4)	7,4-7,6	0,9-1,5	
800/500	- - -	C, 4-5 -	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV..993 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1275	14,4-17,4	-	-	-	ca.13	100	min.7,2	200	0,5-1,2
- - -	- - -	- - -	-	-	-	-	250	5,6-5,8	700	4,4-4,8
ca.48	10,5	1290-1300	-	-	-	-	310-370 = 2,0	270	270	8,3
- - -	4,0	1365-1395	-	-	-	-	450	0 - 1		
- - -	1450	0 - 1,0	-	-	-	3a				

Torque control travel a = 0,6+0,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	102,5-103,5 (100,5-105,5)	1290 - 1300*	800	95,5- 98,5 (93,5-100,5)	100	135,0-145,0	1250	11,5+0,1
					250	7,0 mm RW	900	11,9+0,3
			500	90,0- 94,0 (88,0- 96,0)	100-170 (80-190)		500	12,3+0,1
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,5	1295-1310	250	6,1	100	min.7,6	-	-
				4,0	1345-1375			250	6,0-6,2		
				1500	0 - 1,0			360-420	=2,0		
								500	0 - 1		

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	3a	4	5	6	7
1250	101,5 - 102,5 (99,5 - 104,5)			500	78,0 - 86,0 (76,0 - 88,0)	100	129,25 - 139,25
						250	7 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,6-16,4	600	16,0	10,5	1295-1310	250	6,0	100	min.7,5	1250	11,5-11,6
				4,0	1365-1395			250	5,9-6,1	1000	11,8-12,0
				1500	0 - 1,0			360-400	=2,0	600	12,2-12,4
								500	0 - 1		

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation At 1295-1310 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	3a	4	5	6	7
1250	102,5 - 103,5 (100,5 - 105,5)			800	95,5 - 98,5 (93,5 - 100,5)	100	135,0-145,0 (132,0-148,0) = 18,3-19,3 mm RW
				500	90,0 - 94,0 (88,0 - 96,0)	250	7,0 mm RW

En Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FOR 6,6 a 1

1. Edition

PES 6 A 95 D 410 RS 2688

RQV 350-1300 AB 1208 L

supersedes -

Komb.-Nr. 9 400 085 232

company: Ford

engine: 6,6 l TC

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,15-3,25$
(3,10-3,30) mm (from BDC); RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,1-0,1	8,6 - 8,8	0,35 (0,6)			
350	6,9-7,1	1,0 - 1,4	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1345	15,2-17,8	-	-	-	ca. 18	100	min.10,0	300	1,3-1,5
ca. 62	11,1	1340-1350					350	6,9-7,1	500	3,5-3,7
	4,0	1460-1490					670-730	=2,0	1000	5,9-6,1
	1600	0 - 1,0				400-500			1345	8,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑧		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1300	0,5 bar 86,0-88,0 (84,0-90,0)	1340 - 1350*	LDA 900	0,5 bar 86,0-89,0 (83,5-91,5)	100	115,0-125,0 = 20,0- 21,0 mm RW	1300	12,1+0,1
LDA 600	0,5 bar 83,0-86,0 (80,5-88,5)		LDA 600	0 bar 57,0-59,0 (55,0-61,0)			600	12,8+0,1
							800	12,6+0,2
							900	12,4+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2
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D. Adjustment Test for Manifold Pressure Compensator

FOR 6,6 a 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6A..RS 2688 +RQV..AB 1208 L	0,50	0	12,8 - 12,9
		0,40	10,6 - 10,7
		0,25	12,2 - 12,3
			11,0 - 11,2

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 0

1. Edition

En

PES 6 A 95 D 320 RS 2693 RSV 300-1300 A 2 B2195 R
Komb.-Nr. 0 400 876 327
Values apply to fuel-injection test tubing 1 680 750 015

supersedes DAF
company DNT 620
engine 130 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,5+0,1	7,6-7,8	0,35(0,45)			
300	6,1-6,3	0,7-1,1	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
			4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 17	300	5,7	1290	11,0-11,1
	X = 3,75						300	6,1-6,3	500	11,6-11,7
ca. 49	10,0	1330-1340					670-730=2,0		975	11,4-11,5
2a	4,0	1430-1460							1015	11,1-11,3
	1590	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 850	0,7 bar 76,0-78,0 (74,0-80,0)	330-1340*	LDA 1290	0,7 bar 75,5-78,5 (73,0-81,0)	100	130,0-140,0 (127,0-143,0) =19,5-21,0 mm RW	300	6,2
			LDA 600	0 bar 65,0-67,0 (63,0-69,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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F23

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D. Adjustment Test for Manifold Pressure Compensator

DAF 6,2 0

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 A..RS 2693 + RSV..A 2 B 2195 R	0,70	0 0,25	11,5-11,6 11,2-11,4 11,4-11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 12

1. Edition

En

PE 6 P 110 A 320 RS 372/Y RSV 250-1100 P 5/458 R
Komb.-Nr. 0 401 876 235/Y

supersedes
company DAF
engine DKA 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,1-11,2	11,5-11,7	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm/rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	11,3-11,4
	X =						250	6,6-6,8	300	11,5-12,0
ca. 51 2a	10,1	1140-1150					640-700 = 2,0			
	4,0	1275-1305								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
850	114,5-116,5 (111,5-119,5)	1140-1150*	-	-	100	245,0-285,0 RW = 19,5 - 21,0 mm	0 250	6,7

Checking values in brackets

* 1 mm less control rod travel than col 2

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G1

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 AEC 12,0 a 1

2. Edition

PE 6 P 120 A 320 RS 298 Z RQV 250-1100 PA 277 R
Komb.-Nr. 0 401 846 389

supersedes 7.84
company: AEC
engine: TL 12/10

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,4-3,5$
(3.35-3.55) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,0+0,1	20,0-20,2	0,5(0,9)			
250	7,7-7,9	1,6-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev./min Control rod travel mm 2	Control rod travel mm rev./min ②a	Degree of deflection of control lever 4	rev./min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev./min 8	Control rod travel mm ③	rev./min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 34	100	min. 9,2	200	0,9-1,2
ca. 61	13,0 4,0 1350	1140-1150 1210-1240 0-1,0					250 420-480 = 2,0	7,7-7,9	500 800 1100	3,7-3,9 5,2-5,6 7,9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b	Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤			
rev./min 1	cm ³ /1000 strokes 2	rev./min 3	rev./min 4	cm ³ /1000 strokes 5	rev./min 6	cm ³ /1000 strokes 7	rev./min 8	Control rod travel mm 9
LDA 1100	0,7 bar 200,0-202,0 (197,0-205,0)	1140-1150*	LDA 1100	0 bar 176,0-180,0 (174,0-182,0)	250	16,0-20,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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G2

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D. Adjustment Test for Manifold Pressure Compensator

AEC 12,0 a 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P..RS 298 Z + RQV..PA 277 R	0,70	0 0,50 0,45	14,0-14,1 12,4-12,5 13,5-13,6 12,9-13,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 110 A 721 RS 369 RQ 300/1300 PA 412 DR
Komb.-Nr. 0 401 856 142

supersedes 5.84
company Steyr
engine WD 615.60

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,5+0,1	11,7-11,9	0,4(0,75)			
250	9,3-9,5	1,8-2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③		
600	15,6-16,4	600	16,0	11,5	1345-1360	300	6,0	100	min.7,4	300	12,5-12,6	700	13,2-13,3	900	12,9-13,1	100	12,6-12,7															
				4,0	1405-1435			300	5,9-6,1																							
				1550	0-1,0			390-430	=2,0																							

Torque-control travel on flyweight assembly dimension a = 0,35 mm Speed regulation: At 1345-1360 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ -1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ -1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm Control rod travel 7		⑥		
LDA 1300	0,7 bar 117,0-119,0 (114,0-122,0)	-	-	-	LDA 700	0,7 bar 107,0-111,0 (104,0-114,0)	100	115,0-135,0														
					LDA 700	0 bar 100,0-102,0 (97,0-105,0)																

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

STE 10,0 b

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 369 + RQ..PA 412 DR	0,70	0	13,2-13,3
		0,31	12,8-12,9
		0,27	13,1-13,2
			12,9-13,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

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WPP 001/4 DAF 11,6 i 3

En 2. Edition

PE 6 P 110 A 320 RS 372/W

RSV 250-1100 P 5/458 R

supersedes -

Komb.-Nr. 0 401 876 235/W

company

DAF

engine

DKT 1160 206 kW

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC bei RW = 9,0 - 12,0 mm.)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,8+0,1	15,3 - 15,6	0,4 (0,75)			
250	7,0-7,2	1,0 - 1,4	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
	800	0,3-1,0	-	-	-	ca. 21	250	6,6	400	13,0-13,1
loose	x =									
ca. 51	11,8	1140-1150					250	7,0-7,2	300	13,2-13,7
2a	4,0	1275-1305					710-770	= 2,0		
	1425	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limits Note: changed to) rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	245,0-285,0	250	7,1	
850	152,5-155,5 (150,0-158,0)		600	127,5 - 130,5 (124,0 - 134,0)		RW = 19,5 - 21,0 mm			

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11.6 i 3

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
PE6P .. RS 372/W + RSV .. P 5/485 R	0,70		12,8 - 12,9
		0,35	12,5 - 12,6
		0	11,4 - 11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 i 6
2. Edition

En

PE 6 P 110 A 320 RS 372/Z RSV 250 - 1100 P 5/458 R
Komb.-Nr. 0 401 876 235/Z

supersedes
company DAF
engine DKT 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC) bei RW = 9,0 - 12,0 mm.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,3+0,1	14,3 - 14,6	0,4 (0,75)			
250	6,6-6,8	0,7 - 1,1	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.21	250	6,2	400	12,5-12,6
	X =						250	6,6-6,8	300	12,7-13,2
ca.51	11,3	1140-1150					640-700	= 2,0		
2a	4,0	1275-1305								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to .. rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,70 bar	1140-1150*	LDA	0 bar	100	245,0-285,0	250	6,7
850	142,5 - 145,5 (140,0 - 148,0)		600	127,5 - 130,5 (124,0 - 134,0)		RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,5 i 6

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372/Z + RSV .. P 5/458 R	0,70		12,3 - 12,4
		0,30	12,0 - 12,1
		0,26	11,6 - 11,8
		0	11,4 - 11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 9

1. Edition

En

PE 6 P 120 A 320 RS 372-1/X RSV 250 - 1000 P 5/458
Komb.-Nr. 0 401 876 261/X

supersedes
company DAF
engine DKX 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,4+0,1	20,5 - 20,9	0,5 (0,90)			
250	6,2-6,4	1,1 - 1,5	0,8 (0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.20	250	5,8	400	11,6 - 11,7
	X =						250	6,2-6,4	300	11,8 - 12,3
2a	10,4	1035-1045					620-680	= 2,0		
	4,0	1155-1185								
	1325	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,7 bar	1035-1045*	LDA	0 bar	100	320,0-360,0	250	6,3
850	205,0 - 209,0 (202,0-212,0)		600	139,0 - 143,0 (135,0 - 147,0)		RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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C10

D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 9

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372-1 + RSV .. P 5/458	0,70		11,4 - 11,5
		0,37	11,0 - 11,1
		0,30	10,3 - 10,7
		0	10,0 - 10,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 DAF 11,6 k 11

1. Edition

En

PE 6 P 110 A 320 RS 372-1/X RSV 250-1100 P 5/458-1

Komb.-Nr. 0 401 876 254/X

supersedes DAF
company DKT 1160 A

engine
Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$ mm (from BOSCH) $2,75-2,95$ mm (from BOSCH) RW = 9,0 - 12,0 mm.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	12,3+0,1	14,2 - 14,5	0,4 (0,75)			
250	6,6-6,8	0,7 - 1,1	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever 1	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees 7	Lower rated speed		Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	250	6,2	400	12,5-12,6
	x =						250	6,6-6,8	300	12,7-13,2
ca. 48	11,3	1140-1150					620-690 = 2,0			
2a	4,0	1200-1230								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	245,0-285,0	250	6,7
850	141,5 - 144,5 (139,0 - 147,0)		600	127,5 - 130,5 (124,0 - 134,0)		RW = 19,0 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 11

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372-1 + RSV .. P 5/458-1	0,70		12,3 - 12,4
		0,30	12,0 - 12,1
		0,26	11,6 - 11,8
		0	11,4 - 11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 13

1. Edition

En

PE 6 P 110 A 320 RS 372-1/Y RSV 250-1100 P 5/458-1
Komb.-Nr. 0 401 876 254/Y

supersedes
company DAF
engine DKA 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90
Port closing at prestroke (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
850	11,1-11,2	11,5-11,7	0,4(0,75)			
250	6,6-6,8	0,7-1,1	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,2	400	11,3-11,4
	X =						250	6,6-6,8	300	11,5-12,0
ca. 51	10,1	1140-1150					640-700	= 2,0		
2a	4,0	1275-1305								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)	Note: changed to ...)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
850	114,5-116,5 (111,5-119,5)	1140-1150*	-	-	-	100	245,0-285,0 RW = 19,5 - 21,0 mm	250	6,7

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 k 15
1. Edition

En

PE 6 P 110 A 320 RS 372-1/2 RSV 250 - 1100 P 5/458-1
Komb.-Nr. 0 401 876 254/Z

supersedes -
company DAF
DKT 1160
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-SO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0 - 12,0 mm.

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,1	15,3 - 15,6	0,4 (0,75)			
250	7,0-7,2	1,0 - 1,4	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.21	250	6,6	400	13,0-13,1
	X =						250	7,0-7,2		
ca.51	11,8	1140-1150					710-770 = 2,0			
2a	4,0	1275-1305								
	1425	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note changed to) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1140-1150*	LDA	0 bar	100	245,0-285,0 RW = 19,5 - 21,0 mm	250	7,1
850	152,5 - 155,5 (150,0 - 158,0)		600	127,5 - 130,5 (124,0 - 134,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 k 5

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P .. RS 372-1 + RSV .. P 5/458-1	0,70		12,8 - 12,9
		0,355	12,5 - 12,6
		0	11,4 - 11,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

Testoil-ISO 4113

PE 6 P 100 A 320 RS 384

RQ 225/1100 PA 450/2 DR

superseded 11.82
DAF
company: DKL 1160
engine:

1 - 5 - 3 - 6 - 2 - 4 $\pm 0,50^\circ$
0 - 60 - 120 - 180 - 240 - 300 $(\pm 0,75)$
Komb.-Nr. 0 401 846 412

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $(3,15-3,35)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,9-12,0	11,5 - 11,7	0,35(0,6)			
225	7,3-7,5	0,8-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	Setting point rev/min	Control rod travel mm	Control rod travel mm	Test specifications rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	10,1	1145-1060	225	6,0	100	min. 7,6	1050	11,1-11,2
								225	7,3-7,5	600	11,9-12,0
1300	0,3- 1,0			4,0	1175-1205			325-365	=2,0	825	11,7-11,9
										915	11,1-11,4

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
600	1145 - 116,5 (1125 - 118,5)	-	1050	105,0 - 108,0 (103,0 - 110,0)	100	195,0 - 235,0 19,5-21,0 mm RW
					225	8,0-14,0 (5,5-16,5)

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384
Komb.-Nr. 0 401 846 438

RQ 225/1100 PA 517

supersedes 1.82

company: DAF

engine: DKL

151 kW (205 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,5+0,1	11,1-11,3	0,35(0,6)			
225	7,2-7,4	1,0-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications			Setting point	Test specifications			rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	9,8 4,0 1300	1140-1155 1170-1200 0-1,0	225	7,3	100 min. 7,5 225 7,2-7,4 325-365=2,0		600 1050 800 855	11,5-11,6 10,8-11,0 11,2-11,4 10,9-11,2

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
600	110,5-112,5 (108,5-114,5)	600	1050	107,0-111,0 (105,0-113,0)	100	195,0-235,0 =19,5-21,0

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384/Y
Komb.-Nr. 0 401 846 412/Y

RQ 300/1100 PA 450/2 DR

supersedes
company DAF
engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,20-3,30}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,9+0,1	11,4-11,7	0,3(0,60)			
225	7,3-7,5	0,8-1,2	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12				
550	15,6-16,4	550	16,0	10,1	1145-1160	225	7,4	100	min.7,5	600	11,9-12,0				
				4,0	1175-1205			225	7,3-7,5	825	11,7-11,9				
				1300	max. 1,0			325-365	=2,0	915	11,1-11,4				
										1050	11,1-11,2				

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm Control rod travel
1	2	3	4	5	6	7
600	114,0-117,0 (112,5-118,5)	600	1050	104,0-109,0 (102,5-110,5)	100	195,0-235,0 RW = 19,5- 21,0 mm

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 6 P 100 A 320 RS 384/Z

RQ 250/1100 PA 517

Komb.-Nr. 0 401 846 438/Z

supersedes

company DAF

engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,20-3,30} (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,0-11,3	0,3(0,60)			
225	7,2-7,4	1,0-1,4	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of sider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8	1140-1155	225	7,3	100	min.7,5	600	11,5-11,6
				4,0	1170-1200			225	7,2-7,4	800	11,2-11,4
				1300	max. 1,0			325-365=2,0		855	10,9-11,2
										1050	10,8-11,0

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
600	110,0-113,0 (108,5-114,5)	600	1050	106,5-111,5 (105,0-113,0)	100	195,0-235,0 RW = 19,5- 21,0 mm

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 t 3

En 2. Edition

PE 6 P 100 A 320 RS 384/Y RQ 225/1000 PA 571
Komb.-Nr. 0 401 846 452/Y

supersedes...
company: DAF
engine: DKDL 1160 V

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
625	11,5+0,1	11,0-11,3	0,3(0,60)			
1000	10,6+0,2	10,0-10,4	-			
225	7,5-7,7	1,5-1,7	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,6 4,0 1250	1045-1060 1100-1130 max. 1,0	225	7,6	100 225 330-370=2,0	min.8,0 7,5-7,7	625 850 1000	11,5-11,6 11,0-11,2 10,6-10,8

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
625	110,0-113,0 (108,5-114,5)	625	1000	100,0-104,0 (98,0-106,0)	100	170,0-210,0 RW = 19,5- 21,0 mm

Checking values in brackets

5.85

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G21

G21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 m 12

1. Edition

En

PE 6 P 100 A 320 RS 384/Z
Komb.-Nr. 0 401 846 452/Z

RQ 250/1000 PA 571

supersedes

Company: DAF

engine: DKDL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,20-3,30$
(3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,4+0,1	9,8-10,0	0,3(0,60)			
1000	10,6+0,2	9,3-9,7	-			
250	7,5-7,7	0,9-1,3	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Control rod travel mm	Control rod travel mm	Test specifications	Setting point	Control rod travel mm	Control rod travel mm	Test specifications	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	9,6 4,0 1250	1045-1060 1100-1130 max. 1,0	250	7,6	100 250 345-385=2,0	min.8,4 7,5-7,7	600 820 900 1000	11,4-11,5 11,2-11,4 10,8-11,1 10,6-10,8

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
500	98,0-100,0 (96,0-102,0)	600	1000	93,0-97,0 (91,0-99,0)	100	170,0-210,0 RW = 19,5- 21,0 mm

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384-1

RQ 225/1100 PA 574-1

supersedes

company: DAF

Komb.-Nr. 0 401 846 513

engine: DK 1160 V

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
600	11,1+0,1	10,8-11,0	0,35(0,6)			
225	7,2-7,4	1,0-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control		
Control rod travel	①	Setting point	Test specifications			Setting point	Test specifications			③		
rev/min	2	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	Control rod travel	rev/min	mm	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11	12	
550		500	16,0	9,1 4,0 1300	1140-1155 1170-1200 0,3-1,0	225	7,3	100 225 325-365 = 2,0	min. 7,5 7,2-7,4	600 1050 820 925	11,1-11,2 10,1-10,3 10,8-11,0 10,3-10,6	

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ -1000 strokes	rev/min	rev/min	cm ³ -1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
600	108,0-110,0 (106,0-112,0)	-	1050	97,0-101,0 (94,5-103,5)	100	195,0-235,0 (191,0-239,0) = 19,5-21,0 mm RW
					225	10,0-14,0 (7,5-16,5)

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 w

2. Edition

En

PE 6 P 100 A 320 RS 384-1 RSV 250-1100 P 5/506

Komb.-Nr. 0 401 876 284

Note VDT-I-420/114

supersedes 7.84

DAF

company DK 1160 V

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference		Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
			cm ³ /100 strokes	cm ³ /100 strokes			
600	11,5+0,1	11,1-11,3	0,35(0,6)				
250	7,2-7,4	1,2-1,6	0,35(0,55)				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Degree of deflection of control lever	Upper rated speed rev/min		Intermediate rated speed			Control-lever deflection in degrees	Lower rated speed		Torque control	
	Control rod travel mm	Control rod travel mm rev/min					rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 21	250	6,8	1050	10,8-11,0
		x = 4,3					250	7,2-7,4	600	11,5-11,6
							700-760	2,0	825	11,2-11,4
ca. 50	9,8	1125-1135							900	11,1-11,4
(2a)	4,0	1260-1290								
	1400	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Test oil temp. 40°C (104°F)	Full-load stop		Rotational-speed limit	Fuel delivery characteristics		Starting fuel delivery Idle		Idle stop	
	rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
600	110,5-112,5 (108,5-114,5)	1125-1135*	1050	106,5-111,5 (104,0-114,0)	100	195,0-235,0 (191,0-239,0) = 19,5-21,0 mm RW	250	7,3	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

2PP 001/4 DAF 11,6 m 1

1. Edition
En

PE 6 P 100 A 320 RS 384-1/Y RQ 225/1000 PA 571
Komb.-Nr. 0 401 846 465/Y

supersedes
company DAF
engine: DKDL 1160 V

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
625	11,5+0,1	11,0-11,3	0,3(0,6)			
1000	10,6+0,2	10,0-10,4	-			
225	7,5-7,7	1,5-1,7	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		①		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Control rod travel mm 5		Test specifications rev/min 6		④		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		⑤		Torque control rev/min 11		Control rod travel mm 12		③		
550	15,6-16,4	550	16,0	9,6	1045-1060	225	7,6	100	min.8,0	625	11,5-11,6																					
				4,0	1100-1130			225	7,5-7,7	850	11,0-11,2																					
				1250	max. 1,0			330-370	=2,0	1000	10,6-10,8																					

Torque-control travel on flyweight assembly dimension a = 0,50 mm Speed regulation: At 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		②		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		③b		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7		⑥		
625	110,0-113,0 (108,5-114,5)	625		1000	100,0-104,0 (98,0-106,0)	100	170,0-210,0 RW = 19,5- 21,0 mm															

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 11,6 m 2

1. Edition

En

PE 6 P 100 ^ 320 RS 384-1/Y RQ 300/1100 PA 574
Komb.-Nr. 0 401 846 466/Y

supersedes—
company: DAF
engine: DKL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 41-13

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,20-3,30}
(3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 5
600	11,5+0,1	11,0-11,3	0,3(0,60)			
1050	10,8+0,2	10,7-11,2	-			
225	7,2-7,4	1,0-1,4	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12				
550	15,6-16,4	550	15,0	9,8 4,0 1300	1140-1155 1170-1200 max. 1,0	225	7,3	100 225 325-365=2,0	min.7,5 7,2-7,4	600 800 855 1050	11,5-11,6 11,2-11,4 10,9-11,2 10,8-11,0

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	cm ³ /1000 strokes 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 8	
600	110,0-113,0 (108,5-114,5)	600	1050	106,5-111,5 (105,0-113,0)	100	195,0-235,0 RW = 19,5- 21,0 mm	

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

PE 6 P 100 A 320 RS 384-1/Z
Komb.-Nr. 0 401 846 465/Z

RQ 250/1000 PA 571

supersedes -

company: DAF

engine: DKDL 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,4+0,1	9,8-10,0	0,3 (0,60)			
1000	10,6+0,2	9,3-9,7	-			
250	7,5-7,7	0,9-1,3	0,3 (0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	Control rod travel mm 12	
15,6-16,4	16,0	9,6	1045-1060	7,6	100	min. 8,4	500	11,4-11,5			
		4,0	1100-1130		250	7,5-7,7	820	11,2-11,4			
		1250	max. 1,0		345-385	=2,0	900	10,8-11,1			
							1000	10,6-10,8			

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: Δt 1045-1060 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
600	98,0-100,0 (96,0-102,0)	600	1000	93,0-97,0 (91,0-99,0)	100	170,0-210,0 RW = 19,5- 21,0 mm

Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

PE 6 P 100 A 320 RS 384-1/Z RQ 250/1100 PA 574
Komb.-Nr. 0 401 846 466/Z

supersedes
company DAF
engine: DKL 1160

Testoil-ISO 4113

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,20-3,30 \\ (3,15-3,35) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,5+0,1	11,0-11,3	0,3(0,60)			
225	7,2-7,4	1,0-1,4	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation Setting point				Idle speed regulation Setting point				Torque control	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16,0	9,8	1140-1155	225	7,3	100	min. 7,5	600	11,5-11,6
				4,0	1170-1200			225	7,2-7,4	800	11,2-11,4
				1300	max. 1,0			325-365	=2,0	855	10,9-11,2
										1050	10,8-11,0

Torque-control travel on flyweight assembly dimension a = 0,25 mm Speed regulation: At 1140-1155 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ mm 7
600	110,0-113,0 (108,5-114,5)	600	1050	106,5-111,5 (105,0-113,0)	100	195,0-235,0 RW = 19,5- 21,0 mm

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 1

5. Edition

En

PE 6 P 110 A 320 RS 385 RSV 250-750 P7/479
Komb.-Nr. 0 401 876 250
1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300° ± 0,5° (± 0,75°)

supersedes 7.84
company DAF
engine DK, DKT, DKS, DKA116C

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,75-2,95) mm (from BDC: RW 9,0-12,0 mm)
2,80-2,90

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	16,9-17,2	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm 2	mm rev/min 3	4	5	6		rev/min 8	mm 9	rev/min 10	mm 11
Loose	800	0,3-1,0	-	-	-	ca. 18	250	6,9	-	-
	x = 3,75						250	6,8-7,0		
ca. 44 2a	790-795 = 11,6						245-305 = 2,0 mm	**		
	810-825 = 4,0									
	950 = 0,3-1,7									

The numbers denote the sequence of the tests

** Set idle auxiliary-spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	169,5-172,5 (167,0-175,0)	790-795*	-	-	250	25,0-33,0 (22,5-35,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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H5

H5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 7

1. Edition

En

PE 6 P 110 A 320 RS 385/R
Komb.-Nr. 0 401 876 250/R

RSV 250-900 P 7/479

supersedes

company DAF

engine DK 1160 A

DK 1160 M

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
($2,75-2,95$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,0+0,1	13,9-14,2	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 19	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 44	10,1	760-770					260-320	= 2,0		
2a	4,0	770-790								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
750	138,5-141,5 (135,0-144,0)	760-770*	-	-	100	min. 19,5 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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H6

H6

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 8

1. Edition

En

PE 6 P 110 A 320 A RS 385/S
Komb.-Nr. 0 401 876 250/S

RSV 250-750 P 7/479

supersedes...

company DAF

engine DK 1160 A

DK 1160 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,1	13,9-14,2	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 19	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 44	10,1	760-770					260-320	= 2,0		
2a	4,0	770-790								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to ...)									
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
750	138,5-141,5 (136,0-144,0)	760-770*	-	-	100	min.19,5 mm RW	-	-			

Checking values in brackets

* 1 mm less control rod travel than col 2

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H7

H7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 9

En

1. Edition

PE 6 P 110 A 320 RS 385/T RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 250/T

supersedes
company DAF
engine DKA 1160 A
DKA 1160 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$
 $(2,75-2,95)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,1+0,1	14,1-14,4	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm; rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
			4	5	6		rev/min 8	Control rod travel mm 9		
loose	700	0,3-1,0	-	-	-	ca. 19	250	6,9	-	-
ca. 52	X =						250 260-320	6,8-7,0 = 2,0		
2a	10,1 4,0 1100	910-920 920-940 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to .) rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery idle		5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9		
750	140,5-143,5 (138,0-146,0)	910-920*	-	-	100	min. 19,5 mm RW	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H8

H8

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 10

1. Edition

En

PE 6 P 110 A 320 RS 385/U
Komb.-Nr. 0 401 876 250/U

RSV 250-750 P 7/479

supersedes

company DAF
engine DKA 1160 A
DKA 1160 M

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Port closing at prestroke $2,80-2,90$
($2,75-2,95$) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,1	14,1-14,4	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 19	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 44	10,1	760-770					250-320	= 2,0		
2a	4,0	770-790								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ..)									
rev/min	cm ³ /1000 strokes	rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9			
750	140,5-143,5 (138,0-146,0)	760-770*	-	-	100	min. 19,5 mm RW	-	-			

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H9

H9

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 11

1. Edition

En

PE 6 P 110 A 320 RS 385/V RSV 250-900-P 7/479
Komb.-Nr. 0 401 876 250/V

supersedes DAF
compares DKS 1160 A
engine DKS 1160 M

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90

Port closing at prestroke (2,75-2,95)

mm (from BDC bei RW = 9,0-12,0 mm)

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,0-13,2	17,9-18,3	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1)

① Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			④ Control lever deflection in degrees 7	Lower rated speed		③ Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 42	12,0	910-920					260-320	= 2,0		
②a	4,0	920-940								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp. 40°C (104°F)		⑥ Rotational-speed limit Note: changed to ... rev/min 3	③a Fuel delivery characteristics		Starting fuel delivery Idle		④a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	178,5-182,5 (176,5-184,5)	910-920*	-	-	100	min. 19,5 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 12

1. Edition

En

PE 6 P 110 A 320 RS 385/W

RSV 250-750 P 7/479

Komb.-Nr. 0 401 876 250/W

supersedes

company DAF

engine DKS 1160 A

DKS 1160 M

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90} (2,75-2,95) mm (from BDC) ^{at} RW = 9,0-12,0 mm

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,0+0,2	17,9-18,3	0,4 (0,75)			
250	6,8-7,7	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 42	12,0	760-770					260-320	= 2,0		
2a	4,0**	770-810								
	950	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to ..)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
750	178,5-182,5 (176,5-184,5)	760-770*	-	-	100	min. 19,5 mm RW	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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H11

H11

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 13

1. Edition

En

PE 6 P 110 A 320 RS 385/Z RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 250/Z

supersedes
company DAF
engine DKT 1160 A
DKT 1160 M

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BD bei RW = 9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	16,9-17,3	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 49 2a	11,6 4,0** 1100	910-920 920-940 0,3-1,7					260-320 = 2,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to .) rev/min		3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
750	169,0-173,0 (167,0-175,0)	910-920*	-	-	100	min. 19,5 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

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H12

H12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 4

3. Edition

En

PE 6 P 110 A 320 RS 385-1 RSV 250-750 P 7/479
Komb.-Nr. 0 401 876 256

supersedes 7.84
company DAF
engine DK, DKT, DKS, DKA

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8-2,9$ mm (from BDG) RW $9,0-12,0$ mm
($2,75-2,95$)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,8+0,1	17,4-17,7	0,4(0,75)			
250	6,8-7,0	2,5-3,3	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Degree of deflection of control lever 1	2 Upper rated speed rev/min		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm	Control rod travel mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	ca. 18	250	6,9	-	-
ca. 44	x = 3,75						250	6,8-7,0		
	2a	950	0,3-1,7				245-305	= 2,0 **		

The numbers denote the sequence of the tests ** Set idle auxiliary-spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	174,0-177,0 (171,5-179,5)	790-795*	-	-	250	25,0-33,0 (22,5-35,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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5.85

H13

H43

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 19

1. Edition

En

PE 6 P 110 A 320 RS 385-1/T RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 256/T

supersedes
company DAF
engine DKA 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,2	14,1-14,4	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	mm
2	3					8	9	10	11	
loose	700	0,3-1,0	-	-	-	ca.17	250	6,9	-	-
ca. 52							250	6,8-7,0		
2a	10,1	915-920					260-320	= 2,0		
	4,0**	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 10,1 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4	5	6	7	8	9
750	140,5-143,5 (138,0-146,0)	915-920*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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H14

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 20

1. Edition

En

PE 6 P 110 A 320 RS 385-1/U RSV 250-750 P 7/479
Komb.-Nr. 0 401 876 256/ U

superseded by
DAF
company DKA 1160
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC bei RW = 9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,1+0,2	14,1-14,4	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Control-lever deflection in degrees			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 44	10,1	790-795					260-320 = 2,0			
2a	4,0**	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 10,1 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ..) rev/min	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	140,5-143,5 (138,0-146,0)	790-795*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H15

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Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

WPP 001/4 DAF 11,6 t 21

1. Edition

En

PE 6 P 110 A 320 RS 385-1/V RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 256/V

supersedes
company **DAF**
engine **DKS 1160**

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,0+0,2	17,9-18,3	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
			4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	x =						250	6,8-7,0		
ca. 49 2a	12,0 4,0** 1100	915-920 935-950 0,3-1,7					260-320	= 2,0		

The numbers denote the sequence of the tests

** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 12,0 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limitat Note changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	178,5-182,5 (176,5-184,5)	915-920*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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H16

H16

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPZ 001/4 DAF 11,6 t 22

1. Edition

En

PE 6 P 110 A 320 RS 385-1/W

RSV 250-750 P 7/479

supersedes

company DAF

engine DKS 1160

Komb.-Nr. 0 401 876 256/W

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,80-2,90$
 $(2,75-2,95)$ mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	13,0+0,2	17,9-18,3	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
Toose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 42	12,0	790-795					260-320	= 2,0		
2a	4,0**	810-825								
	950	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 12,0 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)	Note: changed to ...)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
750	790-795*	-	-	100	RW = 19,5 - 21,0 mm				

Checking values in brackets

* 1 mm less control rod travel than col 2

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H17

H47

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 23

1. Edition

En

PE 6 P 110 A 320 RS 385-1/X RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 256/X

supersedes
DAF
company
DKTD 1160
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,2+0,2	14,4-14,7	0,4 (0,75)			
250	6,8-7,7	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
	X =						250	6,8-7,0		
ca. 49	10,2	915-920					260-320	= 2,0		
2a	4,0**	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 10,2 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ...)	3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	143,5-146,5 (141,0-149,5)	915-920*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 24

1. Edition

En

PE 6 P 110 A 320 RS 385-1/Y RSV 250-750 P 7/479
Komb.-Nr. 0 401 876 256/Y

supersedes
company DAF
engine DKDT 1160

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,2+0,2	14,4-14,7	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	700	0,3-1,0	-	-	-	ca.17	250	6,9	-	-
	X =						250	6,8-7,0		
ca.42 2a	10,2	790-795					260-320	= 2,0		
	4,0**	810-825								
	955	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 10,2 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	143,5-146,5 (141,0-149,0)	790-795*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

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H19

H49

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 25

1. Edition

En

PE 6 P 110 A 320 RS 385-1/2

RSV 250-900 P 7/479

Komb.-Nr. 0 401 876 256/Z

supersedes
company DAF
DKT 1160
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,6+0,1	16,9-17,3	0,4 (0,75)			
250	6,8-7,0	2,5-3,3	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control rev/min 10	Control rod travel mm 11
	mm 2	mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9		
loose	700	0,3-1,0	-	-	-	ca. 17	250	6,9	-	-
ca. 49 2a	X =						250	6,8-7,0		
	11,6	915-920					260-320	= 2,0		
	4,0**	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 11,6 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limitat. Note: changed to ... rev/min 3	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	169,0-173,0 (167,0-175,0)	915-920*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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H20

H20

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 5

3. Edition

En

PE 6 P 120 A 320 RS 385-2 RSV 250-750 P 77479
Komb.-Nr. 0 401 876 274
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes 7.84
company DAF
engine DKX 1160

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from 80°) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,6+0,1	22,1-22,3	0,5(0,9)			
250	4,9-5,1	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees 7	Lower rated speed		3 Torque control	
	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6		rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 18	250	5,0	-	-
	x = 3,75						250	4,9-5,1		
ca. 44	10,6	790-795					250-290	= 2,0		
2a	4,0	810-825						**		
	950	0,3-1,7								

The numbers denote the sequence of the tests

**Set idle auxiliary-spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ... rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	221,0-223,0 (218,0-226,0)	790-795*	-	-	250	14,0-20,0 (11,0-23,0)	250	5,0

Checking values in brackets

*2 mm control rod travel than col 2

5.85

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H21

H21

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 t 26

1. Edition

En

PE 6 P 120 A 320 RS 385-2/Y RSV 250-900 P 7/479
Komb.-Nr. 0 401 876 274/Y

supersedes
DAF
company
DKX 1160
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC bei RW = 9,0-12,0 mm).

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,0+0,1	21,6-22,0	0,5 (0,90)			
250	4,9-5,1	0,2-0,9	0,65(0,95)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 18	250	5,0	-	-
	X =						250	4,9-5,1		
ca. 52	11,0	915-920					250-300 = 2,0			
2a	4,0**	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests ** max. speed difference = 20 - 30 min⁻¹, between control-rod travel 11,0 and 4,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)	Note: changed to ..) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	3	4	5	6	7	8	9		
750	915-920	-	-	100	RW = 19,5 - 21,0 mm				

Checking values in brackets

* 1 mm less control rod travel than col 2

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05.85

H22

H22

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 6

1. Edition

En

PES 6 P 120 A 320 RS 419 RQV 275-1050 PA 495-8
Komb.-Nr. 0 402 046 313

supersedes
company RVI
engine MIDS 062045
169 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing mark 9.0° after
port closing cylinder 1.

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,3+0,1	19,0-19,2	0,5(0,9)			
275	4,8-5,0	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 8	200	min.5,4	250	1,0-1,2
ca. 64	9.3 4,0 1350	1110-1120 1185-1215 0 - 1,0				275-390	275	4,0-4,2	450	3,3-3,8 5,7-6,0 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	0,7 bar 190,0-192,0 (187,0-195,0)	1110-1120 *	LDA 650	0,7 bar 169,0-175,0 (166,0-178,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 104,0-106,0 (101,0-109,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

RVI 9,8 a 6

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P.. RS 419 + RQV..PA 495-8	0,70	0	10,3-10,4
		0,36	8,1-8,2
		0,16	9,7-9,8
			8,5-8,8

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 d 4

1. Edition

En

PES 6 P 120 A 320 RS 419-2 RQV 275-950 PA 735
Komb.-Nr. 0 402 046 311

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes

company RVI

engine MIDS 062045
144 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark 9.5° after
port closing cylinder 1.

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
500	8,5-8,6	11,6 - 11,8	0,5 (0,9)			
275	3,3-3,5	0,7 - 1,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 12	200	min. 4,9	250	1,0-1,2
ca. 62	7,0	1010-1020					275	3,3-3,5	450	3,3-3,8
	4,0	1065-1095							800	5,7-6,0
	1200	0 - 1,0				280-400			950	6,9

Torque control travel a = 0,60 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 500	0,7 bar 116,0-118,0 (113,0-121,0)	1010-1020 *	LDA 950	0,7 bar 135,0-141,0 (132,0-144,0)	100	140,0-160,0 (136,0-164,0)	500	8,5+0,1
			LDA 500	0 bar 101,0-103,0 (98,0-106,0)	275	7,0- 13,0 (4,0- 16,0)	950	7,9+0,1
							750	8,2+0,2
							800	8,0+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2
1,5 4.85

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D. Adjustment Test for Manifold Pressure Compensator

RVI 8,8 d 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P...RS 419-2 + RQV...PA 735	0,70		8,5 - 8,6
		0	7,7 - 7,8
		0,25	8,3 - 8,4
		0,23	7,9 - 8,1

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 11,6 u 4

1. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS 441/Z RSV 250-1200P5/493

Komb.-Nr. 0 401 876 252/Z

superseded by
DAF
company
DHS 825 mil.
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,80-2,90 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,9+0,1	12,8-13,1	0,4 (0,75)			
250	5,0-5,2	0,8-1,2	0,4 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed: rev/min Degree of deflection of control lever mm	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca.22	250	4,6	400	12,1-12,2
	x =						250	5,0-5,2	300	12,3-12,8
ca.54	10,9	1220-1230					560-625	= 2,0		
2a	4,0	1330-1360								
	1500	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note: changed to ... rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 128,0-131,0 (125,5-133,5)	1220-1230*	LDA 600	0 bar 86,0-89,0 (82,5-92,5)	100	245,0-285,0 RW = 19,5 -21,0 mm	0 250	5,1

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

DAF 11,6 u 4

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 441/Z + RSV..P 5/493	0,70	0,36	11,9-12,0
		0,28	11,4-11,5
		0	10,6-11,0
			10,1-10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps **1A** and Governors

40

WPP 001/4 DAF 11,6 u 3

1. Edition

En

PE 6 P 110 A 720 RS 441-1/2 RSV 250-900 P 7/479-1
Komb.-Nr. 0 401 876 270/Z

supersedes DAF
company DHS 825

engine
Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	11,6+0,1	14,3-14,6	0,4 (0,75)			
250	4,8-5,0	0,9-1,3	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	mm rev/min	4	5	6		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 18	250	4,9	-	-
	X =						250	4,8-5,0		
ca. 56	10,6	915-920					250-290 = 2,0			
2a	4,0**	935-950								
	1100	0,3-1,7								

** max. speed difference = 20 - 30 min⁻¹, between
The numbers denote the sequence of the tests control-rod travel = 10,6 und RW = 4,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note: changed to) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	142,5-145,5 (140,0-148,0)	915-925*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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J5

J5

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 8,3 o 10

1. Edition

En

PE 6 P 100 A 720 RS 447-1/Z

RSV 250-900 P 7/479-1

Komb.-Nr. 0 401 876 269/Z

supersedes
DAF
company
DHT 825
engine

Port closing difference
= 0,9 - 1,0 mm between
control-rod travel 9 mm
and control-rod travel 21 mm

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,20-3,30$
 $(3,15-3,35)$ mm (from BDC bei RW = 9,0-12,0 mm.)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,7+0,1	14,2-14,5	0,35(0,60)			
250	5,3-5,5	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	rev/min					rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	700	0,3-1,0	-	-	-	ca. 17	250	5,4	-	-
	x =						250	5,3-5,5		
ca. 48	11,7	915-920					250-295 = 2,0			
2a	4,0	935-950								
	1100	0,3-1,7								

The numbers denote the sequence of the tests control-rod travel = 11,7 und RW = 4,0 mm
** max. speed difference = 20 - 30 min⁻¹, between

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit	3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
rev/min	cm ³ /1000 strokes	Note changed to ..) rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
750	142,0-145,0 (140,5-146,5)	915-920*	-	-	100	RW = 19,5 - 21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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J6

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,9 a 1

3. Edition

En

PES 6 P 120 A 720 LS 470 RQV 250-1100 PA 700
Komb.-Nr. 0 402 046 295
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 0 67

superseded 7.84
company MAN
engine D 28 66 KF
265 kW/2200 min⁻¹
MAN-Nr. 2-7497

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) Zyl. 6; RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
750	12,5+0,1	23,8-24,0	0,5 (0,9)			
250	5,2-5,4	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1130	15,2-17,8	-	-	-	ca. 10	100	min. 6,8	300	1,7-2,0
ca. 62	10,3	1140-1150					250	5,2-5,4	850	6,0-6,2
	4,0	1225-1255					360-420 = 2,0	1100	1100	8,3
	1350	0 - 1,0								

Torque control travel a = 1,15 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 750	1,0 bar 238,0-240,0 (235,0-243,0)	1140-1150*	LDA 650	1,0 bar 239,0-245,0 (236,0-248,0)	100	225,0-245,0 (221,0-249,0)	750	12,5+0,1
LDA 1100	1,0 bar 213,0-219,0 (210,0-222,0)		LDA 500	0,4 bar 191,0-197,0 (188,0-200,0)			1100	11,3+0,1
			LDA 500	0 bar 139,0-141,0			900	12,1+0,2
							1000	11,5+0,3

Checking values in brackets

(136,0-144,0)

* 1 mm less control rod travel than col. 2
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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..LS 470 +RQV..PA 700	1,0	0 0,40 0,24	12,5-12,6 9,3-9,4 11,1-11,2 10,2-10,6

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DEE 10,1 b

1. Edition

En

US-PES 6P 110 A 720 RS 3086 US-RSV 400-1050 PO/492-1

Komb.-Nr. 9 400 231 174

Values apply to fuel-injection test tubing 9 681 271 004

supersedes -

company John Deere

engine 6619 A

215 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,45-3,55
(3,40-3,60) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	13,9+0,1	21,4-21,6	0,4 (0,75)			
400	6,0-6,2	1,9-2,5	0,45 (0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
Loose	800	0,3-1,0	-	-	-	ca. 21	400	5,6	1050	13,9-14,0
	X =						400	6,0-6,2	700	14,3-14,6
ca. 42	12,9	1090-1100								
2a	4,0	1185-1215								
	1280	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to rev/min	3a Fuel delivery characteristics		Starting fuel delivery idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	1,0 bar 213,5-215,5 (210,5-218,5)	1090-1100*	LDA 700	1,0 bar 223,5-226,5 (220,0-230,0)	100	135,0-155	0 400	6,1
			LDA 500	0 bar 136,5-139,5 (133,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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J9

J9

D. Adjustment Test for Manifold Pressure Compensator

DEE 10,1 b

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference mm (1)
	Gauge pressure = bar	Gauge pressure = bar	
US-PES6P..RS 3086 +RST.. P0/492-1	0,36	0,20	13,8-14,0 12,1-12,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 b

1. Edition

En

PES 6 P 100 A 320 RS 3087-1 RQV 300-1250 PA 629

Komb.-Nr. 0 402 046 743

supersedes

company SSCM

engine 6 L 520 AN
148 kW
Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC); RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	10,5-10,7	0,35(0,6)			
300	8,5-8,7	1,4-2,0	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,8	-	-	-	ca. 17	100	min. 10,1	300	1,8-1,9
ca. 65	11,5	1290-1300					300	8,5-8,7	850	4,7-5,0
	4,0	1385-1415							1250	7,9
	1550	0 - 1,0				350-460				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	105,0-107,0 (103,0-109,0)	1290-1300 *	-	-	100	165,0-185,0 (161,0-189,0)	-	-
					300	14,0-20,0 (11,5-22,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2
5.85
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J11

J11

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 P 100 A 320 RS 3087-1 RQ 400/1100 PA 699
Komb.-Nr. 0 402 046 746

supersedes
company: SSCM
engine: 6 L 520 S 1

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,5+0,1	10,3-10,5	0,35(0,6)			
400	7,4-7,6	1,0-1,4	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		① Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		④ Test specifications Control rod travel mm 4		rev/min 5		⑤ Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		③ Torque control rev/min 11		Control rod travel mm 12	
650	19,2-20,8	650	20,0	11,5	1145-1160	400	7,5	400	7,4-7,6	1100	12,5-12,6	450	490=2,0	650	12,5-12,7		
VH= max. 46°				4,0	1225-1255	1350	0-1,0										

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm ³ /-1000 strokes 2		Control rod stop rev/min 3		③a		Fuel delivery characteristics rev/min 4		③b		Starting fuel delivery Idle speed rev/min 6		⑥ Control rod travel cm ³ /1000 strokes/mm 7	
1100	103,0-105,0 (101,0-107,0)	-	-	-	-	-	-	100	170,0-190,0 (166,0-194,0)	400	10,0-14,0 (7,5-16,5)				

Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 12,0 1

1. Edition

En

PE 6 P 120 A 320 RS 3088 RSV 200-900 P 4/421
Komb.-Nr. 0 401 876 724
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
company Volvo
TD 120 G
engine 245 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,4-2,5} (2,35-2,55) mm (from BDC; RW=9,0-12,0 mm)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,7+0,1	21,1-21,3	0,5(0,9)			2,5±0,1
250	3,6-3,8	1,6-2,0	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed Degree of deflection of control lever	Control rod travel		Intermediate rated speed			4 Control-lever deflection in degrees	Lower rated speed		3 Torque control	
	mm	min rev/min	4	5	6		rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,7	-	-	-	ca. 22	250	3,2	-	-
		Y = 5,5					250	3,6-3,8		
ca. 60	11,7	940-950					300-360 = 2,0			
2a	4,0	995-1025								
	1160	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
700	211,0-213,0 (208,0-216,0)	940-950*	-	-	100	390,0-440,0 (386,0-444,0) =20,0-21,0 mm RW	250	3,7
					250	16,0-20,0 (13,0-23,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

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J13

J13

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 VOL 12,0 1 1

1. Edition

En

PE 6 P 120 A 320 RS 3088 RSV 200-1000 P 4/421
Komb.-Nr. 0 401 876 735
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
company Volvo
engine TD 121 G

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,4-2,5$
 $(2,35-2,55)$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	16,9-17,1	0,5(0,9)			2,5±0,1
250	4,0-4,2	1,6-2,0	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,7	-	-	-	ca. 22	250	3,6	-	-
	X = 4,0						250	4,0-4,2		
ca. 58	10,4	1040-1050					280-340	2,0		
2a	4,0	1060-1090								
	1230	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp. 40°C (104°F)		6 Rotational-speed limit. Note: changed to ..) rev/min	3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	169,0-171,0 (166,0-174,0)	1040-1050*	-	-	100	390,0-440,0 (386,0-444,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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J14

J14

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 12,0 d 1

1. Edition

En

PE 6 P 120 A 320 RS 3088-2 RSV 650-750 F 4/421
Komb.-Nr. 0 401 876 731
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
company Volvo-Penta
engine TD 121 GG
230 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,4-2,5 \\ (2,35-2,55) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4 ^{+0,1}	18,5-18,9	0,5(0,9)			2,5 ^{+0,1}
650	3,2-3,4	2,0-2,4	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 32	650	3,3	-	-
	X = 2,75						650	3,2-3,4		
ca. 39	10,4	750-755					630-690=2,0			
2a	4,0	776-789								
	930	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to ... rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	700	185,0-189,0 (183,0-191,0)	750-755*	-	-	100	390,0-440,0 =20,0-21,0 mm RW	650	3,3

Checking values in brackets

* 1 mm less control rod travel than col 2

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 10,5 a 1

1. Edition

En

PES 6 P 120 A 320/RS 3092-1 RQV 400-750 PA 708

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

supersedes

ccompan:SSCM

engine: 6L 520-S 25

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
700	14,4+0,1	23,0-23,2	0,5 (0,9)			
400	5,2-5,4	1,2-1,8	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
-	13,4 4,0 1,0	750-755 780-793 900	-	-	-	ca. 10	100 400	min. 8,7 7,1-7,3	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	230,0-232,0 (227,0-235,0)	750-755 *	-	-	100	175,0-195,0 (171,0-199,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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J16

J 16

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 B&O 31,2 a 2

1. Edition

En

PE 12 P 130 A 120 RS 3094 RQV 350-900 PA 618

Komb.-Nr. 0 401 830 703

1-12-9-4-5-8-11-2-3-10-7-6

0-45-60-105-120-165-180-225-240-285-300-345 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

DHK:1 688 901 019 Line: 1 680 750 067

supersedes -

company: Baudouin

engine: V 12 P 15 SRCN

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC) RW = 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,2+0,1	30,9 - 31,2	0,6(1,0)			
350	4,8-5,0	2,0 - 2,6	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 30	350	4,8-5,0	325	1,2-1,6
ca. 62	11,2 4,0 1150	940-950 1005-1035 0 - 1,0				350-450			500 750 900	3,1-3,8 6,0-6,4 7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	309,0-312,0 (305,0-315,0)	940-950 *	-	-	350	20,0-26,0 (16,0-30,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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J17

J17

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 GUS 31,8 a 1

1. Edition

En

PE 12 P 130 A 120 RS 3094-2 RQV 350-750 PA 602-2

Komb.-Nr. 0 401 830 709

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

DHK: 1 688 901 019 Line: 1 680 750 706

supersedes -

company: Guascor

E 318

engine:

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{3,6-3,7}
 (3,55-3,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	10,0+0,1	24,5 - 24,8	0,6(1,0)			
350	3,8-4,0	2,1 - 2,7	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
-	9,0 4,0 1,0	750-755 776-789 900	-	-	-	ca. 8	100 350	min.5,4 3,8-4,0	-	-

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
750	245,0-248,0	750-755 *	-	-	350	21,0-27,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 14,0 a

3. Edition

En

PE 12 P 100 A 520 RS 3103 RQV 375-1000 PA 639

supersedes 9.83

Komb.-Nr. 0 401 840 708

company: SSCM

1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12

engine: Poyaud V 12-520 AN

0-15-0-75-120-135-180-195-240-155-300-315° ± 0,5° (+ 0,75°)

219 kW (298 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	11,5+0,1	9,3 - 9,5	0,3(0,6)			
375	7,6-7,8	0,8 - 1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1050	15,2-17,8	-	-	-	ca. 19	100	min. 9,2	350	0,9-1,5
ca. 65	10,5	1040-1050					375	7,6-7,8	800	5,5-5,8
	4,0	1105-1135							1000	7,9
	1250	0 - 1,0				375-475				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	93,0-95,0 (91,0-97,0)	1040-1050 *	-	-	100	230,0-250,0 (226,0-254,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

1. Edition
NPP 001/4 KHD 9,6 g

En

PES 6 P 110 A 720 RS 3104 RQV 300-1150 PA 549-2
Komb.-Nr. 0 402 046 761

supersedes
KHD
company
BF 6L 413 FRC
engine: 220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1150	14,4±0,3	16,9-17,1	0,4(0,75)			
300	7,6-7,8	1,6-2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1225	15,2-17,8	-	-	-	ca. 20	100	min. 9,1	250	0,5-0,8
ca. 55	13,4	1190-1200					300	7,6-7,8	550	3,6-4,2
	4,0	1295-1325							850	5,4-5,7
	1450	0 - 1,0				320-500			1150	7,8

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,9 bar 169,0-171,0 (166,0-174,0)	1190-1200 *	LDA 450	0 bar 123,0-125,0 (120,0-128,0)	100	135,0-155,0 (131,0-159,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

KHD 9,6 q

Test at n = 450 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..RS 3104 + RQV..PA 549-2	0,90	0 0,5 0,36	14,4-14,5 12,4-12,5 13,9-14,0 12,8-13,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,6 a
5. Edition

En

PES 6 P 110 A 720 RS 3105 RQV 275-1150 PA 642
Komb.-Nr. 0 402 046 749
0 402 046 739
0 402 046 731

supersedes 2.83
company: IVECO-UNIC
8220-22
engine: 176 kW (239 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,2-3,3}
(3.15-3.35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,	12,2 - 12,4	0,4(0,8)			
275	5,3-5,5	0,9 - 1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 11	100	min.6,9	250	0,9-1,1
ca. 60	10,7 4,0 1400	1190-1200 1280-1310 0 - 1,0					275	5,3-5,5	450	2,9-3,3
							280-375		850	5,3-5,5
									1150	8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 122,0-124,0 (119,0-127,0)	1190-1200*	LDA 400	0 bar 87,0-89,0 (84,0-92,0)	100	160,0-180,0 (156,0-184,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2



J22

J22

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,6 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES6P..RS 3105 mit RQV..PA 642	0,70	0	11,7 - 11,8
		0,23	10,5 - 10,6
		0,21	11,3 - 11,4
			10,8 - 11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ² and Governors

PES 6 P 120 A 320 RS 3119 RQ 750 PA 597
 Komb.-Nr. 0 402 046 745
 Calibrating nozzle-and holder assembly 0 688 901 019
 Test-pressure line 1 680 750 067

supersedes-
 company: RVI
 engine: MIDR 063540

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,5-3,6} (3,45-3,65) mm (from BDC)RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	4,8+0,1	33,1-33,3	0,5(0,9)			
250	4,8-5,0	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel mm	Setting point	Test specifications		Setting point	Test specifications		rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	11	12	
-	-	-	-	13,8 4,0 900	750-755 787-800 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
700	331,0-333,0 (328,0-336,0)	-	-	-	-	-

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL. 10,0 q 3

2. Edition

En

PE 6 P 110 A 320 RS 3108

RQV 325-1100 PA 232-1

supersedes 90.84

Komb.-Nr. 0 401 846 781

compatible with

engine EM/TD 100 G

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	14,7-14,9	0,4(0,8)			2,5 [±] 0,1 (2,2-2,9)
325	4,0-4,2	1,7-2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max. *	1150	15,2-17,8	-	-	-	ca. 13	100	min. 5,5	300	1,5-1,6
ca. 46	10,5 4,0 1350	1140-1150 1210-1240 0-1,0					325 340-400=2,0	4,0-4,2	570 830 1100	3,5-4,1 5,4-5,6 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 147,0-149,0 (144,0-152,0)	1140-1150*	LDA 1000	0,9 bar 138,0-142,0 (135,0-145,0)	100	170,0-200,0 =20,0-21,0 mm RW	-	-
			LDA 700	0 bar 100,0-102,0 (97,0-105,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

K1

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05.85

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 q 3

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3108 + RQV..PA 232-1	0,90	0	11,5-11,6
		0,61	9,1-9,2
		0,29	11,3-11,4
			9,2-9,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 4

1. Edition

En

PE 6 P 110 A 320 RS 3108
Komb.-Nr. 0 401 846 785

RQV 250-1100 PA 589

supersedes -
company: Volvo
engine: N 10/TD 101 GB

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,0-3,1}{(2,95-3,15)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	15,1 - 15,3	0,4 (0,75)			
250	4,1-4,3	1,9 - 2,3	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 9	100	min. 5,6	300	1,6-2,1
ca. 61	10,7 4,0 1350	1140-1150 1210-1240 0 - 1,0					250 320-380	4,1-4,3 = 2,0	550 700 1000 1100	4,8-5,6 6,4-6,6 7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 151,0-153,0 (148,0-156,0)	1140-1150*	LDA 1000	0,9 bar 140,0-144,0 (137,0-147,0)	100 250	170,0-200,0 19,0-23,0 (16,5-25,5)	-	-
			LDA 700	0 bar 115,5-118,5 (113,0-121,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

K3

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K3

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 3108 +RQV..PA 589	0,90	0	11,7 - 11,8
		0,54	9,9 - 10,0
		0,36	11,2 - 11,3
			10,0 - 10,2

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 6

1. Edition

En

PE 6 P 110 A 320 RS 3108 V RQV 250-1100 PA 649

Komb.-Nr. 0 401 846 784

supersedes

company Volvo

engine B 10/THD 101 FD
210 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{3,0-3,1}{(2,95-3,15)}$ mm (from BDCRW=9,0-12,0 mm)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,7+0,1	18,0-18,2	0,4(0,75)			2,5±0,1 (2,2-2,9)
250	5,4-5,6	3,2-3,6	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 11	100	min.6,7	200	0,7-0,9
ca. 65	12,7	1140-1150					250	5,4-5,6	430	3,4-3,9
	4,0	1220-1250					345-405=2,0	660		
	1350	0-1,0					1040	6,4-6,6		
									1100	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	1,2 bar 180,0-182,0 (177,0-185,0)	1140-1150*	LDA 700	0 bar 108,0-110,0 (105,0-113,0)	100	160,0-190,0 =20,0-21,0 mm RW	-	-
					250	32,0-36,0 (29,5-38,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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K5

K5

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 6

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3108 V + RQV..PA 649	1,2	0 0,72 0,36	13,7-13,8 9,8-9,9 12,8-12,9 10,9-11,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 110 A 121 RS 3113 RQ 300-1100 PA 646

Komb.-Nr. 0 401 858 700

1-5-4-8-6-3-7-2 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 9.83

company STEYR

engine: WD 815.64
240 kW (326 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1100	11,7+0,1	14,9-15,1	0,4(0,75)			
300	6,1-6,3	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
600	15,6-16,4	600	16,0	10,7 4,0 1400	1145-1160 1200-1230 0-1,0	300	6,2	100 300 400-440= 2,0	min.7,6 6,1-6,3	-	-				

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1135-1150 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
LDA 1100	0,9 bar 149,0-151,0 (146,0-154,0)	-	LDA 500	0 bar 96,0-98,0 (94,0-100,0)	100	200,0-240,0 (196,0-244,0)

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator STE 12,0 b

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

P. mp/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P..LS 3113 + RQ..PA 546	0,90	0	11,7-11,8
		0,53	9,3-9,4
		0,39	11,2-11,3
			9,8-10,0

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 k 1

2. Edition

PE 6 P 120 A 320 RS 3118 RQV 250-1100 PA 657-1
Komb.-Nr.0 401 846 782

superseded by 12-83
company Volvo
TD 121 FD
engine 282 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

Testoil-ISO 4113/

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,6-2,7 \\ (2,55-2,75) \end{matrix}$ mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,3+0,1	23,8-24,1	0,5(0,9)			2,5 \pm 0,1
250	3,3-3,5	1,9-2,3	0,5(0,7)			(2,0-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 9	100	min.5,0	200	0,7-0,9
ca. 61	12,3	1140-1150					250	3,3-3,5	430	3,4-3,9
	4,0	1220-1250					280-340=2,0		660	6,4-6,6
	1350	0-1,0							1040	
									100	7,3

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 238,0-241,0 (235,0-244,0)	1140-1150*	LDA 700	0 bar 138,0-142,0 (135,0-145,0)	100	240,0-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

K9

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D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 k 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3118 + RQV..PA 657-1	0,90	0 0,77 0,17	13,3-13,4 8,5-8,6 13,1-13,2 8,6-8,8

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 2

En 2. Edition

PE 6 P 120 A 320 RS 3118
Komb.-Nr. 0 401 846 779

RQV 300-1050 PA 657-2

supersedes 12.83
company: Volvo BM
engine: TD 121 F

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{2,6-2,7}{(2,55-2,75)}$ mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,3+0,1	21,8 - 22,2	0,5(0,9)			2,5 ± 0,1
300	3,7-3,9	2,2 - 2,6	0,5(0,7)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1130	15,2-17,8	-	↓	-	ca. 10	100	min. 5,2	250	1,1-1,3
ca. 64	12,3 4,0 1325	1105-1115 1180-1210 0 - 1,0					300 350-410	3,7-3,9 ≈2,0	450 660 - 985 050	3,7-4,2 6,4-6,6 7,4

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	1,0 bar 218,0-222,0 (216,0-224,0)	1105-1115 *	LDA 1000	1,0 bar 215,5-220,5 (213,0-223,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-
			LDA 700	0 bar 131,0-135,0 (129,0-137,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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Testoil-ISO 4113

K11

K11

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 K 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 3118 + RQV..PA 657-2	1,0	0 0,68 0,12	12,3 - 12,4 8,5 - 8,7 12,1 - 12,2 8,9 - 9,1

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 k 4

1. Edition

En

PE 6 P 120 A 320 RS 3118-1 RQV 250-900 PA 657-3
Komb.-Nr. 0 401 846 788

supersedes -

company: Volvo

engine: TD 121 FA

206 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke ^{2,6-2,7} (2,55-2,75) mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	10,7+0,1	18,1 - 18,4	0,5(0,9)			2,5 ± 0,1
250	3,3-3,5	1,8 - 2,3	0,5(0,7)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	980	15,2-17,8	-	-	-	ca. 7	100	min.4,8	250	1,2-1,3
ca.59	9,7 4,0 1100	940-950 980-1010 0 - 1,0					250 280-340	3,3-3,5 =2,0	430 700 940	3,5-3,9 6,4-6,6 7,7-7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,7 bar 181,0-184,0 (178,0-187,0)	940 - 950 *	LDA 700	0 bar 150,0-154,0 (147,0-157,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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K13

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 k 4

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel: diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 3118-1 +RQV..PA 657-3	0,70	0 0,34 0,17	10,7 - 10,8 9,1 - 9,2 10,5 - 10,6 9,2 - 9,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 k 5

1. Edition

En

PE 6 P 120 A 320 RS 3118-1 RQV 250-1100 PA 657-4
Komb.-Nr. 0 401 846 789

supersedes -

company: Volvo

engine: TD 121 FB

210 kW

Values only apply to test nozzle-and-holder
assembly 1 683 901 019 and fuel-injection test
tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,7+0,1	18,1 - 18,4	0,5(0,9)			2,5 ± 0,1
250	3,3-3,5	1,8 - 2,3	0,5(0,7)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca. 7	100	min. 4,8	250	1,2-1,3
ca. 63	9,7 4,0 1350	1160-1170 1210-1240 0 - 1,0					250 280-340	3,3-3,5 =2,0	430 700 160	3,5-3,9 6,4-6,6 8,2-8,4

Torque control travel = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 181,0-184,0 (178,0-187,0)	1160-1170 *	LDA 700	0 bar 150,0-154,0 (147,0-157,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

5.85

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K15

KAS

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 k 5

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PE6P..RS 3118-1 +RQV..PA 657-4	0,70	0 0,34 0,17	10,7 - 10,8 9,1 - 9,2 10,5 - 10,6 9,2 - 9,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 6

1. Edition

En

PE 6 P 120 A 320 RS 3118-3 RQV 250-1025 PA 657-6
Komb.-Nr. 0 401 846 797

supersedes

company: VOLVO

engine: TD 121 FE
257 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for each Fuel Injection Pump Test Bench and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,6-2,7 \\ (2,55-2,75) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	12,1+0,1	21,4-21,7	0,5 (0,9)			2,5 ± 0,1
250	3,3-3,5	1,8-2,3	0,5 (0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	15,2-17,8	-	-	-	ca. 10	100	min. 4,8	200	0,7-0,9
ca. 65	11,1	1065-1075					250	3,3-3,5	425	3,4-3,9
	4,0	1120-1150					345-405 = 2,0		660	6,4-6,6
	1250	0 - 1,0							945	
									1025	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA	0,9 bar	1065-1075*	LDA	0 bar	100	240,0-280,0	-	-
700	214,0-217,0 (211,0-220,0)		700	150,0-154,0 (147,0-157,0)		=20,0-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2
5.85
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K17

K17

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min ^{decreasing} pressure - in bar gauge pressure
_{increasing}

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P..RS 3118-1 +RQV..PA 657-6	0,90	0	12,1-12,2
		0,52	9,1-9,2
		0,17	11,9-12,0
			9,2-9,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 7

1. Edition

En

PE 6 P 120 A 320 RS 3118-4 RQV 250-900 PA 657-7
Komb.-Nr. 0 401 846 798

supersedes -

company: Volvo

engine: TD 121 FF
272 kW

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,6-2,7 \\ (2,55-2,75) \end{matrix}$ mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,3+0,1	23,9-24,2	0,5(0,9)			2,5 \pm 0,1
250	3,3-3,5	1,8-2,3	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	980	15,2-17,8	-	-	-	ca. 7	100	min. 4,8	250	1,2-1,3
ca. 59	12,3	940-950					250	3,3-3,5	430	3,5-3,9
	4,0	1015-1045					280-340 = 2,0		700	6,4-6,6
	1150	0 - 1,0							940	7,7-7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high r/e speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 239,0-242,0 (236,0-245,0)	940-950 *	LDA 700	0 bar 150,0-154,0 (147,0-157,0)	100	240,0-280,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

Testoil-ISO 4113

K19

K19

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min ^{decreasing} pressure - in bar gauge pressure _{increasing}

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: ^{diminution} difference mm (1)
PE 6 P..RS 3118-4 + RQV..PA 657-7	0,90	0 0,74 0,17	13,3-13,4 9,1-9,2 13,1-13,2 9,2-9,4

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 8

1. Edition

En

PE 6 P 120 A 320 RS 3118-4 RQV 250-1025 PA 657-8
Komb.-Nr. 0 401 846 799

supersedes
company Volvo

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

engine: TD 121 FG
280 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
700	13,3+0,1	23,9-24,2	0,5 (0,9)			2,5±0,1
250	3,3-3,5	1,8-2,3	0,5 (0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1090	15,2-17,8	-	-	-	ca. 10	100	min. 4,8	200	0,7-0,9
ca. 65	12,3	1065-1075					250	3,3-3,5	425	3,4-3,9
	4,0	1130-1160					345-405 = 2,0		660	6,4-6,6
	1250	0 - 1,0							945	
									1025	7,6

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 239,0-242,0 (236,0-245,0)	1065-1075 *	LDA 700	0 bar 150-154,0 (147,0-157,0)	100	240,0-280,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

VOL 12,0 K 8 - 2 -

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6P..RS 3118-4 +RQV.. PA 657-8	0,90	0 0,74 0,17	13,3-13,4 9,1-9,2 13,1-13,2 9,2-9,4

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 21,0 a

1. Edition

En

PE 12 P 100 A 520 RS 3120 RQV 300-1250 PA 629

Komb.-Nr. 0 401 840 717

1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12
0-15-60-75-120-135-180-195-240-255-300-315 $\pm 0,5^\circ$ ($\pm 0,75^\circ$)

supersedes

compa SSC M

engine V 12.520 ANS 1
295 kW
Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9} (2,75-2,95) mm (from BDC) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1250	12,5+0,1	10,5-10,7	0,35(0,6)			
300	8,4-8,6	1,3-1,7	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,8	-	-	-	ca. 17	100	min. 10,0	300	1,3-1,4
ca. 65	1,5	1290-1300					300	8,4-8,6	950	5,4-5,6
	4,0	1390-1420							1250	7,8-8,0
	1550	0-1,0				350-460				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1250	105,6-107,0 (103,0-109,0)	1290-1300*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

K23

BOSCH

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05.85

K23

Test Specifications Fuel Injection Pumps ② and Governors

PES 8 P 120 A 320 RS 3124 RQ 750 PA 596
 Komb.-Nr. 0 402 048 701
 1-8-4-2-7-3-6-5 je 45° ± 0,5° (± 0,75°)
 Calibrating nozzle-and-holder assembly 0 688 901 019
 Test-pressure line 1 680 750 067

supersedes
 company RVI
 engine MIVS (R) 083530
 320 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,8-2,9}{(2,75-2,95)}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	26,7-26,9	0,5(0,9)			
250	4,2-4,4	1,5-2,1	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point ①		Test specifications ④		Setting point		Test specifications ⑤		rev/min 11	Control rod travel mm 12
		rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10		
-	-	-	-	10,4 4,0 900	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control level Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ mm 7
700	267,0-269,0 (264,0-272,0)	-	-	-	-	-

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 RAB 12,0 a

1. Edition

En

PE 6 P 120 A 721 RS 3125-1 RQ 250/1100 PA 704

Komb.-Nr. 0 401 856 704

Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes

company: RABA
D 12 U
engine: 176 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,5-3,6} (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,7+0,1	15,6-15,8	0,5(0,9)			
250	5,9-6,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PPG check rev/min 1		① Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		④ Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		⑤ Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12		③	
550	15,6-16,4	550	16,0	8,7	1145-1160	250	6,0	100	min.7,5	1100	9,7-9,8				
				4,0	205-1235			250	5,9-6,1	700	9,7-9,9				
	VH max. 46°			1350	0-1,0										

Torque-control travel on flyweight assembly dimension a = 0 mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm ³ /-1000 strokes 2		Control rod stop rev/min 3		③a Fuel delivery characteristics rev/min 4		③b cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		⑥ cm ³ /1000 strokes/mm Control rod travel mm 7	
1100	156,0-158,0 (153,0-161,0)	-	-	-	-	-	-	100	190,0-220,0 (185,0-224,0)				

Checking values in brackets

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 21,2 b

1. Edition

En

8 P 130 A 520/4 RS 3126 RQV 400-750 PA 618-1

Komb.-Nr. 0 401 848 758

1-2-4-5-6-3-7-8 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

Calibrating nozzle-and-holder assembly 1 688 901 019

Test-pressure line 1 680 750 067

supersedes

company Boudouin

engine: 8 P 15

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,8-2,9}
 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,3+0,1	19,2-19,5	0,6(1,0)			
400	4,9-5,1	2,3-2,9	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel		
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	①a	Degree of deflection of control lever 4	rev/min mm 6	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min mm 9	Control rod travel mm ③	rev/min mm ①	11
ca. 50	8,3 4,0 900	750-755 770-780 0-1,0	-	-	-	-	ca. 22	100 400	min.6,5 4,9-5,1	400 475 600 750	0,9-1,1 1,9-2,1 1,9-2,1 5,5

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④r	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤ travel	
rev/min i	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	192,0-195,0 (188,5-198,5)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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L2

L2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 31,8 b 1

1. Edition

En

PE 12 P 130 A 120 RS 3127 RQV 400-750 PA 632

Komb.-Nr. 0 401 830 707

1-12- 9- 4 - 5 - 8 - 11- 2 - 3 - 10- 7 - 6

0-45-60-105-120-165-180-225-240-285-300-345 ± 5 ° (± 0,75°)

Calibrating nozzle-and-holder assembly 1 688 901 019

Test-pressure line 1 680 750 067

supersedes
Boudouin
company
12 P 15
engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	30,7-31,0	0,6(1,0)			
400	4,4-4,6	2,1-2,7	1,0(1,4)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed				Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11	
ca. 25	11,0 4,0 900	750-755 776-789 0-1,0	-	-	-	ca. 6	100 400	min.6,0 4,4-4,6	-	-	

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
700	307,0-310,0 (303,5-313,5)	750-755*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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L3

13

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SSC 21,0 b

1. Edition

En

PE 12 P 120 A 520 RS 3128 RQV 300-1250 PA 639-1
Komb.-Nr. 0 401 840 723
1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12
0-15-60-75-120-135-180-195-240-255-300-315 ± 0,5° (± 0,75°)

supersedes
company SSCM
engine: V 12.520 S 25
625 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC) ^{RW = 9,0-12,0 mm}

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	13,3+0,1	19,8-20,2	0,5 (0,9)			
300	7,9-8,1	2,0-2,6	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1305	15,2-17,8	-	-	-	ca. 17	100 300	min.9,5 7,9-8,1	300 1000 1250	1,3-1,5 5,7-6,0 7,8-8,0
ca. 63	12,3 4,0 1550	1290-1300 1415-1445 0-1,0				350-450				

Torque control travel ₉ = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery: Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	198,0-202,0 (195,0-205,0)	1290-1300*	-	-	100	230,0-250,0 (226,0-254,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ② and Governors

En

PE 12 P 120 A 520 RS 3128 RQV 400-750 PA 708
 Komb.-Nr. 0 401 840 721
 1- 8- 5-10- 3 - 7 - 6 - 11- 2 - 9 - 4 - 12
 0-15-60-75-120-135-180-195-240-255-300-315 ± 0,5° (± 0,75°)
 Calibrating nozzle-and-holder assembly 0 688 901 019
 Test-pressure line 1 680 750 067

supersedes
 company SSCM
 engine V 12.520 S 25
 441 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 2,8-2,9 \\ (2,75-2,95) \end{matrix}$ mm (from BDC) $\begin{matrix} RW=9,0-12,0 \end{matrix}$ mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,3+0,1	22,9-23,1	0,5(0,9)			
400	6,9-7,1	2,0-2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		① Control rod travel mm 2		③ Setting point rev/min 3		④ Test specifications Control rod travel mm 5 rev/min 6		⑤ Idle speed regulation Setting point rev/min 7 Control rod travel mm 8 Test specifications rev/min 9 Control rod travel mm 10		⑥ Torque control rev/min 11 Control rod travel mm 12	
-	-	-	-	13,3	750-755	400	7,0	100	min.8,5	-	-
				4,0	780-793			400	6,9-7,1		
				900	0-1,0						

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At $750-755 \text{ min}^{-1}$ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /-1000 strokes 2		③a Control rod stop rev/min 3		③b Fuel delivery characteristics rev/min 4 cm ³ /-1000 strokes 5		⑥ Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 Control rod travel	
700	229,0-231,0 (226,0-234,0)	-	-	-	-	100	170,0-190,0 (166,0-194,0)

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BAO 15,9 c

1. Edition

En

PES 6 P 130 A 320 RS 3133 RQV 350-900 PA 618
Komb.-Nr. 0 402 046 753

supersedes
Boudouin
company
6 P 15 - SRCE
engine: 368 kW

Calibrating nozzle-and-holder assembly 0 681 443 022
Test-pressure line 1 680 750 060

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,7+0,1	32,8-33,2	0,6 (1,05)			
350	3,9-4,1	2,0-2,6	0,95(1,3)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	940	15,2-17,8				ca. 22	100	min. 5,5	325	1,1-1,4
ca. 60	10,7 4,0 1150	940-950 1000-1030 0-1,0				350-450	350	3,9-4,1	500 800 900	3,1-3,8 5,5-6,9 8,0

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	328,0-332,0 (324,0-336,0)	940-950*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 12,0 f

1. Edition

En

PES 6 P 120 A 320 RS 3139 RQV 275-950 PA 728
Komb.-Nr. 0 402 046 756
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

supersedes
RVI
company MIDR 063540
engine 259 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark 9° after
port closing cylinder 1
Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,45-3,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	13,0+0,1	24,1 - 24,3	0,5(0,9)			
275	5,4-5,6	2,0 - 2,6	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1140	5,2-17,8	-	-	-	ca. 12	200	min. 7,0	250	1,0-1,2
ca. 62	12,0	015-1025					275	5,4-5,6	450	3,3-3,8
	4,0	115-1185							800	5,8-6,0
	1250	0 - 1,0				295-400			950	6,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 950	1,0 bar 241,0-243,0 (238,0-246,0)	1015 - 1025*	LDA 600	1,0 bar 246,0-252,0 243,0-255,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 111,0-113,0 (108,0-116,0)	275	20,0-26,0 (17,0-29,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.85

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L7

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D. Adjustment Test for Manifold Pressure Compensator

RVI 12,0 f

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 P...RS 3139 + RQV...PA 728	1,0	0	13,0 - 13,1
		0,60	9,2 - 9,3
		0,20	12,3 - 12,4
			9,9 - 10,5

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 12,0 f 1

1. Edition

En

PES 6 P 120 A 320 RS 3139 RQV 275-950 PA 728-1
Komb.-Nr. 0 402 046 758

supersedes _
company: RVI
engine: MIDR 063540
243 kW

Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Port closing mark 9.0° after
port closing cylinder 1

A. Fuel Injection Pump Settings

Port closing at prestroke $3.5-3.6$ mm (from BDC), RW = 9.0-12.0 mm
(3.45-3.65)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
950	12.5+0.1	22.9-23.1	0.5(0.9)			
275	5.4-5.6	2.0-2.6				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1140	15.2-17.8	-	-	-	ca. 12	200	min. 7.0	250	1.0-1.2
ca. 62	11.5 4.0 1250	1015-1025 1155-1185 0 - 1.0				300-400	275	5.4-5.6	450 800 950	3.3-3.8 5.8-6.0 6.9

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 950	1.0 bar 229.0-231.0 (226.0-234.0)	1015-1025 *	LDA 600	1.0 bar 231.0-237.0 (228.0-240.0)	100	140.0-160.0 (136.0-164.0)	-	-
			LDA 500	0 bar 111.0-113.0 (108.0-116.0)	275	20.0-26.0 (17.0-29.0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P .. RS 3139 + RQV .. PA 728-1	1,0	0 0,50 0,20	12,5-12,6 9,3-9,4 11,7-11,8 9,8-10,4

Notes.

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 UNI 9,5 a

1. Edition

En

PES 6 P 110 A 720 RS 3140

RQV 275-1100 PA 501-2

Komb.-Nr. 0 402 046 757

supersedes

 company IVECO-UNIC
 engine 8460.21.102
 192 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{3,2-3,3}
 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,5+0,1	14,6-14,9	0,4(0,75)			
275	6,7-6,9	2,2-2,7	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1160	15,2-17,8	-	-	-	ca. 14	100	min.8,3	250	1,0-1,2
ca. 64	10,5 4,0 1350	1140-1150 1215-1245 0-1,0					275	6,7-6,9	400	2,7-3,0
							280-375		850	5,5-5,7
									1100	7,7-7,9

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*	LDA 500	0 bar 131,0-134,0 (128,5-136,5)	100	170,0-190,0 (166,0-194,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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05.85

L11

D. Adjustment Test for Manifold Pressure Compensator

UNI 9,5 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel- diminution difference mm (1)
PES 6 P..RS 3140 + RQV..PA 501-2	0,70	0 0,265	11,5-11,6 10,8-10,9 11,2-11,3

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 14,6n

4. Edition

En

PE 8 P 110 A 320 LS 3802 RQ 750 PA 374 R
 Komb.-Nr. 0 401 848 737
 1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ$ ($\pm 0,75^\circ$)
 Note VDT - I - 401/102

supersedes 9.83

company: Daimler-Benz

engine: OM 420
 154 kW (209 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-HSO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) cyl. 8; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery mit RSD (1) cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery ohne RSD (2) cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,9+0,1	14,2-14,4	0,4(0,8)	13,9+0,1	14,2-14,4	
300	8,3-8,4	1,3- 1,9	0,4(0,7)	8,3-8,4	1,3- 1,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
-	-	-	-	-	-	12,9	750-755	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						6,1	783-796														

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		cm ³ /-1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		cm ³ /-1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		cm ³ /1000 strokes/mm 7	
(1 u. 2)				-	-	-	-	-	-	(1)			
700		142,0-144,0 (139,0-147,0)								100		130,0-150,0	
										(2)		140,0-160,0 (136,0-164,0)	

Checking values in brackets

5.85

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L13

L13

Test Specifications Fuel Injection Pumps ② and Governors

PE 8 P 110 A 320 LS 3802 RQ 300/1150 PA 437-3
Komb.-Nr. 0 401 848 755
1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$

supersedes 5.84
company: Daimler-Benz
engine: OM 422
184 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at préstroke $4,0 - 4,1$
 $(3,95-4,15)$ mm (from BDC) cyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	11,3-11,5	0,4(0,8)			
300	8,5-8,7	1,4-2,0	0,4(0,7)			
600	-	c, Sp. 4 u.5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3			Test specifications rev/min 6			Idle speed regulation Setting point rev/min 7			Test specifications rev/min 9		Torque control rev/min 11	
Control rod travel mm 2	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 7	Control rod travel mm 8	Control rod travel mm 9	Control rod travel mm 10	Control rod travel mm 11	Control rod travel mm 12					
650	13,2-14,0	650	13,6	10,0 4,0 1350	1195-1210 1260-1290 0-1,5	300	8,1	100 300 400-440 = 2,0	min.8,5 7,0-7,2 2,0	1150	11,0-11,1	600	11,2-11,4	

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: AI 1195-1210 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2	Control rod travel mm 3a	Control rod travel mm 3b	Control rod travel mm 4	Control rod travel mm 5	Control rod travel mm 6	Control rod travel mm 7	
1150	113,0-115,0 (110,5-117,5)	600	600	92,0-96,0 (89,0-99,0)	100	130,0-150,0 (126,0-154,0)	

Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6c

6. Edition

PE 8 P 110 A 320 LS 3802 RQV 300-1150 PA 524-2
RQV 300-1150 PA 524-3

Komb.-Nr. 0 401 848 712
1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0,5^{\circ}$ ($\pm 0,75^{\circ}$)

Note VDT - I - 401/102

supersede 9.83

company: Daimler-Benz

engine: OM 422
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$
(3,95 - 4,15) mm (from BDC) Zyl. 8; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery ** cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	12,2 - 12,4	0,4(0,8)	11,7+0,1	13,3-13,5	
300	8,1-8,3	1,3 - 1,9	0,4(0,7)	7,9-8,1	1,5- 2,1	
600	-	C, Sp. 4 u. 5	0,6(0,9)	-	C, Sp. 4 u. 5	
* with return throttle (1)				** without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 21	100	min.10,1	250	1,0-1,2
ca. 66	11,3 4,0	1190-1200 1235-1265				330-465	300	8,1-8,3	550 850 1150	3,4-3,7 5,0-5,3 7,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5b	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1150	122,0-124,0 (119,0-127,0)	1190-1200*	600	114,0-118,0 (111,0-121,0)	100	130,0-150,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

L15

L15

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B. Governor Settings

MB 14,6c

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca.21	100	min.10,1	250	1,0-1,2
ca. 66	10,7 4,0	1190-1200 1235-1265				330-465	300	8,4-8,6	550 850 1150	3,4-3,7 5,0-5,3 7,7

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1150	132,5-134,5 (130,0-137,0)	1190-1200*	600	110,5-114,5 (107,5-117,5)	100	130,0-150,0 (125,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

1

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6c1

3. Edition

En

PE 8 P 110 A 320 LS 3802-1 RQV 300-1150 PA 524-9

Komb.-Nr. 0 401 848 752

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ±0,5° (±0,75°)

Note VDT - I - 401/102

supersedes 2.83

company Daimler-Benz

engine OM 422

206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $4,0 - 4,1$
(3,95-4,15) mm (from BDC) 7yl. 8; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery * cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery ** cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	13,1-13,3	0,4(0,75)	12,3+0,1	13,1-13,3	
300	8,0-8,2	1,5- 2,1	0,4 (0,75)	8,0-8,2	1,5-2,1	
600	-	C, Sp. 4 u. 5	0,6 (0,9)	-	C, Sp. 4 u.5	
* with return throttle (1)				** without return throttle (2)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 21	100	min. 9,7	250	1,0-1,2
ca. 66	11,3 4,0	1190-1200 1235-1265				330-465 ③a	300	8,0-8,2	550 850 1150	3,4-3,7 4,3-5,3 7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b ④a	Fuel delivery characteristics high idle speed ⑤a ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150 (1)	131,0-133,0 (128,5- 135,5)	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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L17

L17

B. Governor Settings

MB 14,6 c 1

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1150	15,2-17,8	-	-	-	ca. 21	100	min.9,7	250	1,0-1,2
ca. 66	11,3 4,0	1190-1200 1235-1265					300	8,0-8,2	550 850 1150	3,4-3,7 4,9-5,3 7,6
						330-465				

Torque control travel a = - mm

Testoil-ISU 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
(2) 1150	131,0-133,0 (128,5-135,5)	1190-1200 *	600	112,0-116,0 (109,0-119,0)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 a 3

1. Edition

En

PE 8 P 110 A 320 LS 3802-10 RQV 300-1150 PA 486-3
Komb.-Nr. 0 401 848 756

supersedes

company: Daimler-Benz
engine: OM 422
184 kW

Testoil-ISO 4113

1-8-7-2-6-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{4,0-4,1}
(3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,0+0,1	11,3-11,5	0,4 (0,8)			
300	8,4-8,6	1,4-2,0	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 22	100	min. 9,7	300	1,6-1,8
ca. 54	10,0 4,0 1400	1190-1200 1230-1260 0-1,0					300	8,0-8,2	800	5,8-6,2
							410-480 = 2,0		1200	8,2-8,4
									1260	10,0

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	113,0-115,0 (110,5-117,5)	1190-1200 *	600	92,0-96,0 (89,0-99,0)	100	140,0-160,0 (136,0-164,0)	1150	11,0+0 1
							600	11,2+0 2

Checking values in brackets

* 1 mm less control rod travel than col. 2

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 c 2

1. Edition

En

PE 8 P 110 A 320 LS 3802-10 RQV 300-1150 PA 524-2
Komb.-Nr. 0 401 848 712

1-8-7-2-5-3-5-4 je 45 ° ± 0,5 ° (± 0,75 °)

supersedes

company Daimler-Benz

engine: OM 422
206 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 4,0-4,1 \\ (3,95-4,15) \end{matrix}$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,4-13,6	0,4 (0,8)			
300	7,9-8,1	1,5-2,1	0,4 (0,7)			
600	-	C, Sp. 4 u. 5	0,6 (0,9)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 22	100	min. 9,6	300	1,6-1,8
ca. 55	10,7 4,0	1190-1200 1240-1270					300	7,9-8,1	800	5,8-6,2
							410-470 = 2,0		1200	8,2-8,4
									1260	10,0

Torque control travel * = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1150	133,5-135,5 (131,0-138,0)	1190-1200	600	110,5-114,5 (107,5-117,5)	100	130,0-150,0 (126,0-154,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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L20

L20

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 17,2 b 3

1. Edition

En

PE 8 P 120 A 920/5 LS 3804 RQV 300-1200 PA 357 R

Komb.-Nr. 0 401 848 735

1-8-4-3-6-5-7-2 je $45^\circ \pm 0,5^\circ (\pm 0,75^\circ)$ Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes

company: Fiat

engine: 8280.02.183

257 kW

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke $3,5-3,6$
(3,45-3,65) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	14,9-15,1	0,5 (0,9)			2,5 \pm 0,1
300	5,5-5,7	2,8-3,4	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca. 12	100 300	min. 7,5 5,5-5,7	250 450 850 1200	0,8-1,1 2,8-3,3 5,5-5,8 8,3
ca. 59	8,3 4,0 1450	1240-1250 1305-1335 0 - 1,0				330-430				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1200	149,0-151,0 (146,0-154,0)	1240-1250 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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L21

L21

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 17,2 b 2

En

1. Edition

PE 8 P 120 A 920/5 LS 3804 Z RQV 300-1050 PA 552
 Komb.-Nr. 0 401 848 722
 1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je 45° + 0,5° (+ 0,75°)
 Values only apply to test nozzle-and-holder
 assembly 1 688 901 019 and fuel-injection test
 tubing 1 680 750 067

supersedes
 company Fiat
 engine 8285.22.002
 243 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,5-3,6}
 (3,45-3,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,1+0,1	18,1 - 18,3	0,5(0,9)			2,5 ± 0,1
300	5,9-6,1	2,4 - 3,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca. 11	100	min. 7,5	275	1,0-1,3
ca. 64	10,1 4,0 1350	1090-1100 1180-1210 0 - 1,0				310-410	300	5,9-6,1	450 800 050	3,5-4,1 6,1-6,3 8,2

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
LDA 1050	0,7 bar 181,0-183,0 (178,0-186,0)	1090-1100 *	LDA 1050	0 bar 135,0-137,0 (132,0-140,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.85

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D. Adjustment Test for Manifold Pressure Compensator

FIA 17,2 b 2

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
 increasing

Pump/governor	Setting	Measurement		Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm	(1)
PE 8 P..LS 3804 Z +RQV..PA 552	0,70	0	11,1 - 11,2	
		0,29	8,5 - 8,6	
		0,25	10,2 - 10,3	
			9,0 - 9,3	

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)